





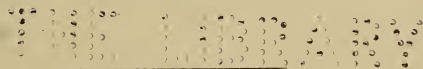
THE
Historic Growth of Man

INTO
The Coming Civilization

BY
DR. ALESHA SIVARTHA



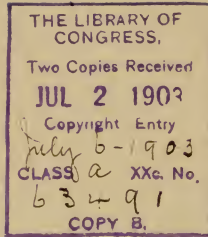
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"The Book of Life"



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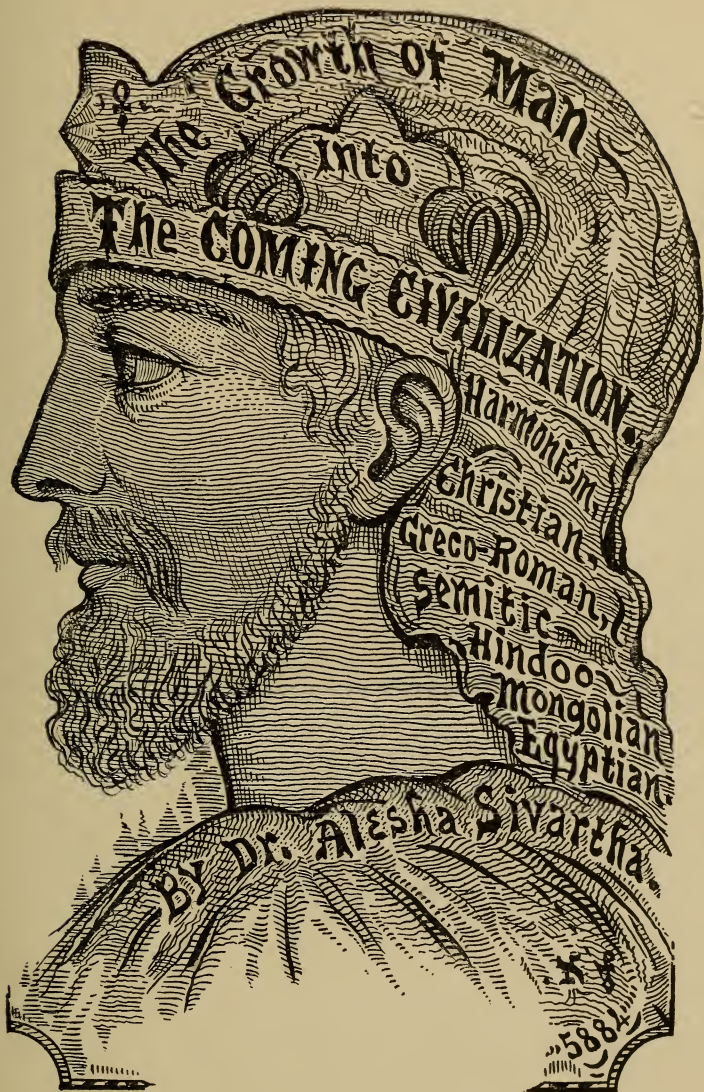
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PLAN OF THE WORK

CHAPTER FIRST.—The Seven Great Civilizations. Race-Growth and the Brain. Phases of National Life. Three upward lines of Evolution for Society.

CHAPTER SECOND.—Social Structures. Natural Basis of Wants. Plan of the Social Organism. Voting, social ranks and conventions.

CHAPTER THIRD.—Social Mechanism and Action. Referendum. Model City, with its Departments. The seven laws of Social Evolution summarized.

CHAPTER FOURTH.—Architecture and Homes. Social Grouping and Work. Spheres of Man and Woman as complements. Social laws of Harmony.

CHAPTER FIFTH.—The Intellectual, Social and Industrial Culture of Man. Model of Schools. The new methods and foundations in natural laws.

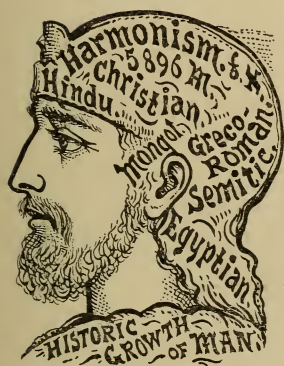
CHAPTER SIXTH.—Wealth and Industry Organized. Universal employment. Collective Ownership, rights of wealth and wages. Captains of Industry for the future.

CHAPTER SEVENTH.—Science and Religion in unity. New methods end the old Mysteries. Central Ideas of the Bible. The Kingdom, the Tree of Life, and the Celestial City.

THE HISTORIC GROWTH OF MAN

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BY DR. ALESHA SIVARTHA.

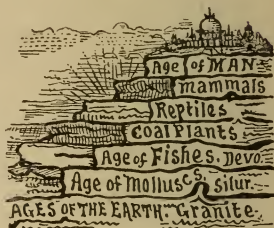


THE HUMAN RACE has been marching upward from the first ages of history. Under what law has that mighty procession of the ages taken place? Science and history both answer that man has advanced, step by step, from the ignorant and selfish rule of his lower brain-organs upward toward the beneficent dominion of his higher faculties.

The laws which have controlled that vast upward movement are still in force. They are fixed in the very constitution of man. And they are of supreme importance at the present time, for they determine what new institutions and what social changes are now required to meet that higher growth of man.

A great number of scientific men have developed our knowledge of these laws of race growth. But thus far no writer has grouped them into clear forms of statement, with the necessary engravings, and thus made them accessible to the general reader. The present writer aims to supply this vital and urgent need in the following chapters.

THE FORCES WHICH UNDERLIE human evolution are broader in their sweep than even the wide range of history. They have governed the growth of the earth itself. They caused the earth to pass through many steps of preparation for the noble advent of man. From the geologic age of Fishes, up to that in which man appeared, we may trace a succession of animals with higher and higher types of brain. At last man came to crown the organic series with a brain so complex in its parts that it ranks him as lord paramount of the earth.



EVOLUTION REQUIRES CONDITIONS. But mere external conditions are not all that is required. A man needs ground on which to build a house. But the house is not generated and produced by the ground. The latter is only one out of several factors. At the end of each geologic age the conditions had become such as to favor a higher kind of life. By passing through the form of organized bodies, matter becomes more and more vitalized; it acquires a more permanent tendency to vibrate in unison with the living forces, and it thus becomes more capable of being molded into new kinds of plants or animals. At every step of this progress the internal or vital forces have acted in concert with the external conditons to produce the new results.

Evolution describes the great methods of growth which rule in the world of living forms. It deals with the past, but it also foretells the future. And this latter work gives its greatest value to man.

SEVEN GREAT FORCES were concerned in the vast movements of early creation. Gravity marked elliptic orbits for the path of worlds. Electricity and magnetism polarized and thus rotated these worlds on their axes. Chemic force, heat and light built up the solid rocks and arranged their wide-spread layers. And the vital force crowded the sea and land with the myriad tribes of animal and plant life.

These forces then held the same relations to each other that they sustain at present.

COMPARE THE BRAIN of a fish with that of man. That is, take the lowest and the highest in the great scale of vertebrate animals. This comparison will bring the law of progress before us in a striking form. As we see in this engraving at the side, the brain of the fish is only about one-third greater in diameter than the spinal cord or spinalis. The balance of nerve-force, of brain power, is only slightly in favor of the head. A large part of the nervous force is in the spinalis, that great bundle whose branching nerves spread to the various parts of the body.



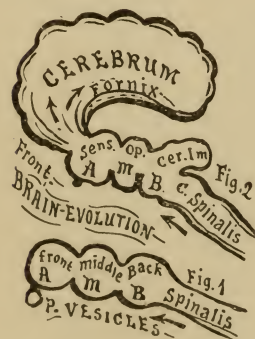
Now look at the brain of man. Its diameters are from six to ten times greater than that of the spinalis

The relative size of the brain has become immensely expanded. That means the dominance of brain over body, of spirit over matter, of the higher over the lower life.

As we ascend in our survey of the scale of life, not only does the brain become relatively larger, but the spinal cord becomes shorter at its lower end. In some of the huge saurians belonging to the age of reptiles we find the cord a hundred feet in length. Well might such animals be taken by sacred writers as symbols of evil, as types of all that is horrid and repulsive. The serpents of our own time are examples of very long spines and a great deal of repulsive power.

These facts of evolution are now accepted by the leading scientific men of our day. They have been verified by a vast array of facts, in both geology and biology.

THE BRAIN AND NERVOUS SYSTEM DEVELOP FROM THE BASE TO THE TOP AND FROM THE BACK TO THE FRONT. The high import of this law will appear as we proceed. It forms one essential basis for a true social science.



The life of the individual foreshadows the life of the race. It shows corresponding phases of growth. It is therefore necessary to study the development of the brain both before and after birth.

In the early stages of prenatal life the brain appears as three little vesicles, marked A, M and B in this

engraving. In the lower figure a little point, *P*, projects downward from the front vesicle, *A*. As the growth of the brain proceeds, this process turns up and then over backward in the direction of the arrows in the upper figure. It goes on expanding until it forms the cerebrum, the larger mass of the brain. Although it thus turns backward, yet the line of the vital forces from the spinalis is forward and upward. The back vesicle, *B*, sends out a process which becomes the cerebellum or little brain, marked *Cer. l. m*, in the upper figure. In the fully developed brain the three primary vesicles become central or subordinate parts.

From the first phase to the close of fetal life the brain presents a constant increase in its complexity of structure. At different parts of this period the brain resembles, in succession, those of an ascending series of the lower animals. But the brains of these lower animals are arrested, some at a lower, some at a higher point; that of man alone passes onward to completion.

In all the vertebrates, the highest division of the animal kingdom, the first part to attain a definite structure is the brain and spinal cord. On a previous page this is shown as the "Primitive Trace." And in the whole scale of life, the rank of each species of animal is determined by its development of the nervous system and of the muscles which are the direct instruments through which the brain and nerves must express themselves.

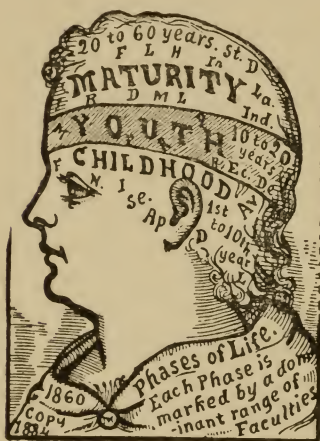
PHASES OF LIFE. The life of a human being, after birth, is marked by three great phases of develop-

ment — Childhood, Youth, and Maturity. These same phases mark the life of each nation and of the human race as a whole. This is what modern science proves and teaches. Each phase is well-marked at its middle period, but at the lines of junction they insensibly glide into each other. These phases display the suc-

cessive unfolding and rule of faculties from the base to the top of the brain, and from the back to the front.

During the period of Infancy and Childhood, from the first to the tenth year, the groups of impulsion, sensation and perception rule the character. The child is restless, impulsive, sensitive and perceptive. The brain easily receives impressions in infancy. But most of these are indistinct and soon replaced by others. The child learns almost wholly through sensation and perception. It constantly asks questions, yet reasons from narrow and ill-observed premises. Although the organs of the top head are often large in childhood, yet they are dormant and not roused into activity until later.

Morality involves the complex relations of society, and the child does not realize these relations. His



life is simple. It is not easy to appeal to his moral sense. The motives placed before him must be such as will directly reach his senses and his limited experience. The child is selfish without having the sense of ownership. He does not perceive that it is wrong to take what belongs to others.

The student of history sees how these childish traits apply in a striking way to the early history of nations and of the human race.

PHASE OF YOUTH. The range of organs which rule in this period from the tenth to the twentieth year, includes the groups of memory, familism and defense. Through observation, memory and language, the youth acquires stores of knowledge; through reverence, parental love and patriotism, he learns some of his relations to his superiors, his equals and his inferiors; and through the faculties of economy, defense and reserve, he gets an idea of property and personal rights.

In the national phase of youth we find that literature, as such, receives its first great impulses of growth. The art of verbal expression outstrips the gains in actual knowledge and the people mistake the skilful clothing of words for the vital form of truth itself, as we see in the Platonic period of Grecian literature. "They knew but little, yet knew how to express that little extremely well."

THE PHASE OF MATURITY reaches from twenty to sixty years. In this period the high faculties of integrity, self-control, sexual, fraternal and religious love and hope, with reason and foresight, come into prominence and rule the character. The crude ideas of childhood and youth are displaced by exact

knowledge The powers of mind and body attain their full solidity and vigor, and the character is rounded out into completeness and symmetry.

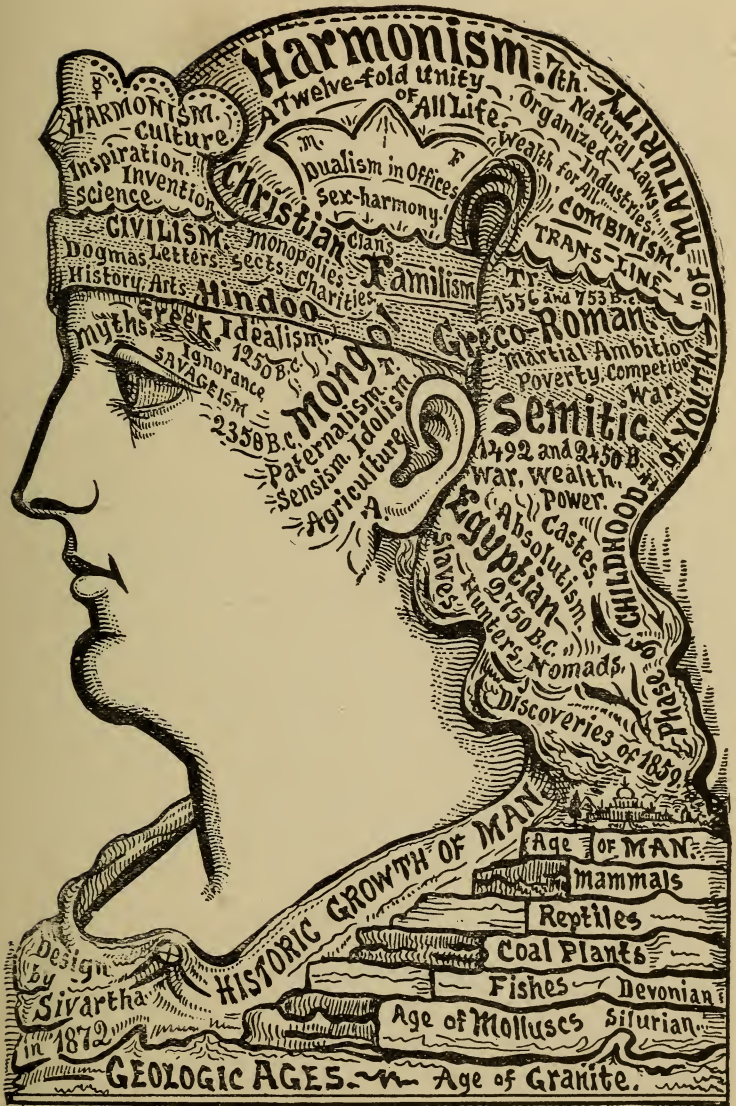
At last, old age or senility comes creeping slowly on. The faculties gradually lose their vigor and the senses become unretentive. The body demands rest and quiet, and its functions pass into decadence.

LINES OF GROWTH. On three great lines of movement we may trace the influence of higher and higher faculties as nations pass through the phases of childhood, youth and maturity. These are the lines of Intellect in the front brain; of Social life in the middle brain, and of Industry in the back brain. Human evolution has meant an increase of knowledge of social or collective life, and of mastery over the forces of nature in the varied fields of industry.

At every upward step these three lines of growth have been closely and vitally dependent upon each other.

This law of interdependence is one of the best established truths in psychology. There can be no valuable or important growth of social life, of morals or religion, without a corresponding growth of knowledge and of industrial conditions. The Affections or social nature must constantly use the intellect in order to perceive, remember and reason about its own objects of love. And the faculties of the will, in the back brain, must be used if we would give any of the impulses or desires of love an outward expression in conduct. Love is the central power, but Wisdom and Will are its constant and essential instruments.

From this law we see that it is utterly vain to hope that we may ever remove the great evils and defects

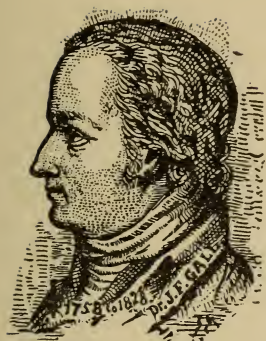


which exist in society by simply increasing our knowledge, or by becoming more religious, or by great economic changes and reforms. So long as this law exists in the nature of man, so long must any one of these remedies assuredly fail if tried alone. The great evils which curse the world have found their source not in one, but in every set of faculties which make up the complex mind of man. It is not difficult to make a social reform which shall be equally broad and definite. "One thing at a time" is not the law of growth in nature, either for evil or for good. In her work, many parts are in process of formation at the same time. It would be well for reformers to learn this profound lesson.

The great drama of human history has not been ruled by the caprices of statesmen and kings, nor by the unguided impulses of men. Despite all of its obstacles and windings, it has been an impressive and majestic procession, moving forward and upward under the dominion of eternal laws. These laws belong to the constitution of the human mind itself. And because the mind has for its central instrument the Brain, with its fixed and permanent groups of faculties, because of this fact we may trace on a map of the human brain all those extended phases in the historic growth of man.

If the mental faculties had not fixed locations in the brain, locations exactly adapted to the function which each one performs, if this were not the case, then all mental operations would be but a mass of disorder and uncertainty.

But these locations in the brain have been established by a whole century of scientific observation



and experiment. Beginning with Dr. Joseph Francis Gall in 1796 and continued by Sir Charles Bell, Marshal Hall, Magendie, Flourens, Dr. Carpenter, Sunderland, Fowler, Buchanan and other mesmerists, succeeded by the extended analytic work of Sivartha and the final and conclusive experiments of Dr. Ferrier; with all these the locations now rest upon as decisive proof as that which any science can claim.

It is true that the physiologists have disproved four of Gall's locations. These were Sex-love, Parental-love, Friendship, and Patriotism. These belong to the side and top brain and not to the back part. The two great centers of the brain, the Motus and Sensus, were discovered after Gall's time. His work was only the beginning of a science. He dealt with the law of Location, but this is only one of the twelve great mental laws. The others have been developed by his successors. Our present knowledge of the subject includes a hundred times more than all that was in the old system of Phrenology. But this volume is not the place to elaborate the proofs and details of mental science. At the present day all scientific men believe in definite functions of the brain.

The sociologists are fond of telling us that there must be a higher growth of the brain among men in order to adapt them to new and better institutions. But these scientists should have given us a map of

the brain with lines drawn to show how far upward the social life of man has already progressed and how much more of the higher faculties of the brain remains for us to bring into dominance before we can reach the top and crown in the great archetype of society.

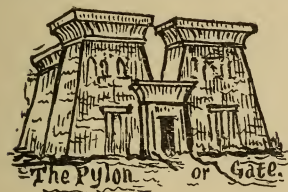
In the full-page Chart of Historic Growth we have supplied such a chart of the brain, mapping out the past history of man with as much detail as the size of the engraving will admit. The middle band, or phase of youth, is shaded by stippling.

In the study of this chart we shall learn that six great forms of civilization have thus far been masters of the world. These were the Egyptian, Mongolian, Hindoo, Semitic, Græco-Roman, and Christian. But each of these forms was fragmentary. Each of them was dominated or took its cast of character from only a limited region of the brain. It supplied only a part of the wants and aspirations of man. Other regions or faculties of the brain were more or less active but did not determine the national character or course of development.

A mere sketch of these past forms will serve our purpose. It will show their failures and will illustrate by contrast that coming and nobler civilization which is close before us, the age of Harmonism. A true study of evolution surveys the past in order to learn of the future.

EGYPTIAN CIVILIZATION commenced its massive and vigorous growth under the most favorable of external conditions. The mental power and susceptibility varies widely in different races of men. The capacity to develop a civilization is only moderate in some while it is very great in others, just as in some

families we see one child with a quick and strong intellect while his brothers may be very slow in thinking and learning. In three centuries the descendants of Kam had raised Egyptian civilization to as high a state as the Mongolian had attained in ten centuries.



This Kamitic growth took a direction which curves backward and downward in the brain. That is the line of arbitrary power and it quickly reached the period of conservatism. It was like the great pylons and pyramids, broad at the base and narrow at the top. The vast temples and palaces proclaimed the absolute and enduring power of kings, priests and nobles. The pylons looked down on hopeless servitude and castes for the people.

Whatever seemed durable, massive and useful, impressed the Egyptian mind. Their genius was practical, not speculative. It was life, and not philosophy, in which they were most interested. With these Egyptians, Science only meant a collection of surface facts, with rules for the various arts and hand-crafts. If their ideas, their art and their science be compared with the standard of modern times, then their old knowledge seems very rude indeed.

The sculptured faces and human figures on all the oldest of these monuments, indeed on all before the conquest of Cambyses, exhibit the art of sculpture only in its primitive and childish forms. In drawing a profile of the face, their artists made just the same mistakes that the ordinary child makes now. On the profile view of the face they drew a front view of the

eye, an impossible position. They drew the ear much too high on the side head. And they made impossible perspective for limbs without muscles. We may well admire the patience required to rear their enormous pyramids and temples, but it is foolish to think that such art required many long centuries for its development. The palm and the lotus of Egypt gave them admirable models for columns and capitals, and in the imitation of these they attained a high excellence. Their work in these still gives models of a high order for the modern architect.



With painstaking fidelity, the sculptured bas-reliefs of Egypt represent the minute details of their daily life, not less than the public affairs of their rulers. We know how they cooked, how they ate and drank, and how they bathed and dressed themselves. We see alike their work in the shop, the house, and the field.

In all these Egyptian monuments we are not able to trace any long and gradual growth out of the barbarous conditions into those of a higher kind. They reached very quickly all that it was possible for them to attain. Under the influence of economy, mobility, arrogance, defense and destruction, directed by sensation, perception, memory and the lower reason, with these for ruling faculties, there could be no high development of either science or art as we understand them. An eternal sphinx stood before the deeper problems of life. All Egypt fixed its gaze downward and backward. But progress for man does not lie in that direction.

When Psametek I. opened the Egyptian ports to foreign commerce (624 B. C.) it stimulated the Greeks to a new intellectual activity, but the reaction was disastrous to the old Egyptian civilization itself. It quickly invited foreign invasion, and first Cambyzes subdued the country (525 B. C.) and later Alexander planted the city named after him, and under the splendid dynasty of the Ptolemies, Egypt became like a Grecian colony.

In its early times, the lower, middle and upper parts of Egypt usually had independent rulers, though all were essentially the same race of people. The separate and mixed records of these dynasties have thrown the early dates of Egyptian history into hopeless confusion. The most learned men of our day differ among themselves by 5,000 years concerning dates which some of them place less than 5,000 years back of our own time. Back of the sixteenth century, B. C., all the dates are uncertain.

CHINESE CIVILIZATION emerged from the mists of tradition about 2358 B. C. At that time the reigns of Yaou and his successor Shun exhibit well established institutions. The Chinese already worked in metals. They wove flax into garments and they raised sheep. The Princess Se-ling-she had discovered how to produce and weave silk from cocoons.

The Chinese character displays the dominant instincts of familism. Around these were grouped their ruling faculties of form, color, memory, sensation, appetite and economy. Their strong filial love adapted them to a paternal form of government,



The Emperor was "The Father of his People" not less than the "Son of Heaven." The people were quick to learn and tenacious in remembering. They were patient, industrious and obedient to authority. These were the elements of both their greatness and their permanence in history. Under the impulse of these faculties they developed agriculture as the firm basis of national life, and held this culture of the earth in the highest esteem.

The Chinese teachers preferred solid knowledge to brilliant fancies, and thought that the examples of the successful past were a safer guide than the untried schemes of the present. The minister Yih, addressing the emperor, said that "Virtue is the basis of good government; and this consists first in procuring for the people the things necessary to their sustenance, such as water, fire, metals, wood and grain. The ruler must also think of rendering them virtuous and of preserving them from whatever can injure life and health." The master, Confucius, taught that "Man is a microcosm, and that by striving to improve himself by acquiring knowledge, by purifying his thoughts, by rectifying his heart and by cultivating his person, he would then be able to regulate his family. When he could regulate his family, he might then be able to govern a state; and when he could govern a state, he might then be trusted to rule an empire. The empire was as one family; and it was the part of the emperor to cherish and guard his people as a father does his children; so it was the duty of the people to render willing and submissive obedience to their sovereign. But when a ruler ceases to be a minister of heaven for good he forfeits the title by which he holds the

throne." The master summed up his morals in this saying, "Reciprocity is the one comprehensive rule of life."

The nation had been slowly developing for three centuries before the time of Yaou. It was averse to foreign wars and conquests. Its riches came from the fertile earth at home. Very early in their history they had invented writing. In the reign of Che-Hwang-ti, 221 B. C., the Marquis Tsæ invented the manufacture of paper from the inner bark of trees, ends of hemp, old rags and fishing nets. Brush-pencils with ink were used in writing. This ink, under the misplaced name of India Ink, is now extensively used by artists in Europe and America. The art of block-printing was invented in 593 C. E. and movable types four centuries later.

From the invention of paper on, great libraries became the glory and pride of the people, learning was everywhere encouraged, and a general system of education became the settled policy of the nation.

The ruling traits of character and the physical geography of China were well fitted to sustain the expanding growth of the ages into one of the most populous empires of the world. At the present stage of its growth, China requires the fertilizing influence of European science and art before it can reach that high ideal foretold by the great sages, Kong-fu-tse, Lao-tse and Mencius. But it does not need this science and art as enforced by European arrogance, egotism and cannon. We must respect its real attainments and character. A nation must possess strong elements of morality and justice in order to sustain its national unity and integrity during the long lapse of forty centuries.

A later branch of the Mongolian civilization was the Japanese. In the fourth and fifth centuries, A. D., the nation came into prominence. It has passed through a more rapid development than China and shown a readier disposition to join the great current of modern thought. Japan is yet destined to play a brilliant part in the drama of human history. Its greatest achievements are yet in the future. With active and ready intellects, as a nation, with social docility and high ambitions, its hopes of the future rest upon a good basis in the national character.

THE HINDOO CIVILIZATION was favored in making an early growth by the climate, the fertile soil and the rich mineral productions of India. Here nature had dealt out her treasures to man with a lavish hand. The line of mental or brain growth in this people was in the direction of contemplative memory, centering in familism. Hence arose



through many centuries vast systems of speculation uncertain in their outlines and impractical in their aims. Without scientific knowledge as a basis, their theories were like castles in the air. They accepted a philosophy without science and a history without dates.

Before the Hindoo mind, the world of external nature seemed like an ever revolving and recurring panorama, incessantly coming and going. It was little matter to them in what part of this shifting illusion they might stand. What mattered it about dates, when each person might be secure that sooner

or later he would be absorbed into the infinite Brahm, the bliss of vast unconsciousness?

Like Plato and many of his followers, the Hindoos based much of their philosophy on the supposed "Illusions of the Senses." But our modern science of physiology has clearly proved that sensations are not illusory. In a state of health the eye, the ear, the skin and other organs of sense always tell the truth. They send into the brain correct reports of the impressions which they have received. If a mistake is made in the matter, if deception occurs, then the fault lies with our reason, not with the sensation. For it is always the proper work of reason to take the impressions of the senses and combine these into a judgment of what is true in the case. The reason may form its judgment without comparing a sufficient number of reports from the senses. For example, the senses do not tell us that the sun rises and sets, or revolves around the earth. The sense of vision in this case simply reports that the sun, or that red disk, appears in different directions, or at successive positions, during the day. It disappears in the west and reappears in the east. The reasoning faculties connect these appearances and comparing them with other experiences in which successive impressions have been felt, the reasoning faculties conclude that the sun is in motion. But in this case the data was incomplete and reason has failed to take into account all the facts. By walking around another person who is sitting still, and then standing still while that person turns himself round, we may easily prove that the successive appearances would be just the same whether it were the sun that moved

round the earth, or the earth that revolved on its own axis.

A careful analysis will show that in any case the so-called "illusion of the senses" is really a mistake of the judgment or reason. We have given a little space to this subject here because the validity of sensations and of human consciousness lies at the basis of all certain knowledge, both physical and spiritual. If our physical senses deceive us, then our spiritual senses do the same, and to the same extent.

The whole superstructure of Brahminism and Buddhism and of various modern systems, is falsified by this mistaken notion about the senses. Take this notion away, and both the old thought of India and the "new thought" of recent times fall in a shapeless mass to the ground.

The earliest Hindoo literature, like that of some other nations, took the form of poems. These grew by slow accretions to a great volume like the Mahabarata. In the twelfth century, B. C., the Brahminic religion had assumed what is still its modern form. If parts of the Vedas have been changed or formed since then, it was rather a change of expression than of thought.

Six centuries of trial proved how much this religion lacked in saving power, and then Gautama sought anew to solve the problem of evil. He founded Buddhism, and while this failed to supplant Brahminism in India, yet it was introduced to China and Japan and there became a leading religion. But this religion, both in its ancient form and in its modern shape as Theosophy, fails utterly and from its very

start, in solving the great problems of life and the universe. It tells us of "an omnipresent, eternal, boundless and immutable PRINCIPLE, on which all speculation is impossible, since it is beyond the range and reach of thought and is both unthinkable and unspeakable." Then, of course, we have a right to say that we do *not* think that it is omnipresent, nor that it is eternal or immutable! Such stuff is quite as bad, as self-contradictory and as nonsensical as Spencer's "Unknowable." A "Wisdom Religion" should have better foundations than such wretched unreason.

The lofty moral precepts of the Hindoo teachers, their inculcations of charity, kindness, compassion and truth, these were to a great extent rendered nugatory by customs and practices shaped by their false philosophies. Yet India, like China, still has a glorious future before her. Her salvation lies not in the *repression* and *suppression* of the senses and aspirations. But rather it will come from learning the normal *expression* of these in a great and worthy system of truth and life.

The north Iranians or Medes were near of kin in blood and thought to the Hindoos. It was the Japhetic race from Media who had passed into India and by contact with the Dravidian race there had developed religion and literature. The Iranians embodied their religion in songs or Gathas about 1500 B. C. These were afterward included in the Zend Avesta by Zarathustra or Zoroaster. This civilization grew until we find (630 B. C.) its two branches, the Medes and Persians, assume a leading position among the Oriental nations. By the

Mohammedan conquest of India (from 1001 A. D.), the influence of Persia as well as of Arabia again became an element in the growth of Hindoo civilization. The Parsees are still an influential class of people in Hindostan.



SEMITIC CIVILIZATION arose in the basins of the Euphrates and Tigris rivers and it divided into three well-marked branches. These were the Chaldean, the Assyrian and the Hebrew. Looking at our chart of Historic Growth we see that these sprang from the faculties in the group of wealth, centering in those

of familism. It was these ruling organs that gave the Assyrians and Chaldeans their boundless delight in war, wealth and power. The Hebrew branch centered on the faculties of familism and this imparted a deeper religious tinge to all their civil and religious institutions.

The rich and fertile alluvial plain which was ancient Chaldea and Mesopotamia, stretches along the rivers some four hundred miles by one hundred and more in breadth. This long tract between and besides the Euphrates and Tigris consists of a series of more and more elevated plateaus as we pass from the south to the north extremity where it is crossed by ranges of the Armenian mountains. It was in this fertile region that the Mosaic records placed the origin of the "white" race, or red men, as this record rightly calls them.

In the days of the Chaldean glory a vast net-work of canals and water courses furnished and regulated the irrigation of the whole lower part of this country. A bountiful soil easily supplied the wants of a teeming population. This and Palestine were the only countries where wheat grew and still grows wild. Grain often returned two hundred fold to the sower. The traveler was greeted with the sight of fragrant groves of palm trees and magnificent gardens, "rising like islands from a golden sea of waving corn." The highways were thronged with passengers going to and from the great marts of commerce. The land was rich in corn and fruits and wine.

It was here that Nimrod, "the mighty hunter," laid the foundations of Babel or Babylon, 2250 B. C. Its massive walls and temples well entitled it to the name of Bab-el or "Gate of the Mighty."



Abundant clay gave a plastic and cheap building material, and the bricks of Babylon and Assyria still endure the changes of time. The Chaldeans soon learned to stamp brick tablets and thus hand down a historic record to posterity. In later ages they gathered libraries of these tablets, numbering twenty or thirty thousands. They patiently cut figures upon hard stones, with sharp outlines that still remain. They wove fine fabrics of linen, muslin and silk. But rulers and rich men absorbed the easily produced wealth from the people. The great buildings were for the kings, and nobles and gods.

Science was little developed and art was incipient.

The most marked advances of science were in noting the primitive facts of astronomy.

In both Chaldea and Assyria selfishness ruled the national character far more than in China or India.

EBER, THE GRANDSON OF SHEM, settled in Padan-Aram, or Upper Ur, of the Chaldees. Three centuries after the flood, the families of the Hebrews or Eberites were established there for a short time. From there Abraham set forth in obedience to a divine call. He journeyed south to Canaan, and from there his grandson Jacob



AARON.

took his family to Egypt. After two centuries, Moses led the Hebrews out of Egypt. They were now a nation of twelve tribes and a numerous people. At the time of the Exodus, three divisions of the Egyptian army were stationed in Canaan. To avoid these, Moses led his people by an indirect route through the wilderness and waited forty years until the enemy had left the Promised Land.

Moses sought to deliver his people from the aristocratic oppression they had suffered in Egypt, and from the confused multiplicity of gods in Chaldea and Canaan. The Mosaic polity undertook to establish the unity and fatherhood of God, and the rule of his laws; the unity of national and domestic life; civil liberty and political equality; an elective magistracy, with all officers responsible to their constituents; a primitive education, so that all could read the law;

the sacredness of the family relation, and the inviolability of private and public property. The land was divided among all the tribes so that each family should have a home, and this was to remain in perpetuity. The land could never be owned and controlled by a few selfish men.

During seven centuries, in the reigns of the Judges and Kings, the ideals of Moses were not carried out with any degree of fidelity. It was in direct violation of his laws that Solomon and Rehoboam had multiplied riches and horses and wives to themselves, in imitation of other Eastern potentates. The burden of heavy taxes thus thrown on the people led to a revolt of ten tribes and the establishment of the separate kingdoms of Israel and Judah. This division invited foreign conquests, and in 721 B. C. the Assyrians came and took the capital of Israel, Samaria, deporting a large mass of the people as captives. The ten tribes on their separation from Judah had given up the worship of Jehovah and adopted that of Baal and Ashtoreth, gods of the Canaanites. And now, in their captivity, they gave up their language as well. A few centuries later they are referred to as the "Lost Tribes," "The Lost Sheep of the House of Israel."

The Kingdom of Judah lasted a little longer. It fell a prey to the Babylonians under Nebuchadnezzar in 604-5 B. C. After seventy years, these people were returned under the proclamation of Cyrus, the Persian, who had now taken the throne of Babylon. From that time onward this division of the Israelites has been known as Jews. They formed less than one-fourth of the ancient nation of Israel,

After the first captivity, there came the great era of Hebrew prophecy. In our seventh chapter, we shall speak of the influence and bearing which those prophecies have upon our own age. The Jews never again attained a complete independence. The Syrians, Greeks and Romans ruled them in turn until the destruction of Jerusalem in 69 and 70 A. D. From that time the Jews were scattered over the earth, yet always preserving their language, their history and their religion.

PHENICIAN GROWTH. The first branch of the Japhetic tribes to reach civilization had strayed to the nearest home. They had turned down the east coast of the Mediterranean Sea and founded Phenicia. They invented an alphabet from the old hieroglyphics and a little later they established commerce on the sea. They stood in friendly relations with the Hebrews when the latter had driven out the Canaanites, who were of another blood. Hiram, King of Tyre, assisted Solomon in building the temple at Jerusalem, the third largest temple in the world, as its ancient walls still attest.

The genius of Phenicia affected and stimulated other branches which had gone to Greece and Italy. They remained in communication with these branches. The families or tribes of Iavan, Elishah, Tarshish, Kittim and Rodanim planted colonies all along their path from Aram to Italy.

These branching stems grew up in Phrygia, Lydia, and Lycia, and in the Troad. And thus it came to



pass that the earliest Grecian civilization was not in Greece itself but in Asia Minor. In the time of Homer its center was in Asia rather than in Europe. Many of the greatest of the Grecians were born outside of Greece proper. Such were Homer, Aristotle, Apelles, Pythagoras, Archimedes and others.

THE GRÆCO-ROMAN CIVILIZATION was planted on a seacoast and on islands the most diversified in the world. These varied physical features of the country impressed and molded the Greek character. Here was to be produced the most varied talents and the most elaborate genius that the world had yet seen.



The infancy of Greek national life may be reckoned from the age of Homer (about 1200 B. C.) to Thales, 636 B. C. The Greeks of that age believed that the sky is the floor of heaven; that the earth is flat and full of dragons, monsters and marvels. Already in this age their art was emerging from the fixed and stiff forms of Asia.

Grecian childhood lasted from Thales to Socrates, 468 B. C. It was a period of active but not of fruitful speculation. Thales taught that the first principle of all things is water; that humidity originates warmth, and that the world has a soul. Anaximenes said that the air is the principal thing, all things spring from it, and the air is God. Diogenes thought that the air has knowledge and is conscious. Anaximander discovers the obliquity of the ecliptic but thinks that the earth is a cylinder, 610 B. C. In other things he was like a Darwinian, for he taught

that in creation the sun acted on the primitive miry earth, producing filmy bladders. These, becoming surrounded by a prickly rind, burst, and animals came forth. Man was first ejected as a fish. In this age Pythagoras taught that all things are constituted by the laws of Sacred Numbers, 540 B. C.

The phase of Grecian youth extended from Socrates to Epicurus, 341 B. C. Socrates taught that mathematics and physics lead to vain conclusions. His pupil, Plato, thinks that the senses are illusory, and he believes that God, Matter and Ideas are the three primary principles. Epicurus believed in pleasures through temperance, and rejects the doctrine of immortality. But it was in the domain of art that this age of Greece was to make its great and brilliant achievements. For several centuries the Greeks had carefully studied the external anatomy of man. They now showed the results in the first statuary and busts that had been correct in form and proportion. They imitated nature in her most graceful moods. In one age they passed from the rude copies of Egyptian or Etruscan art to the masterpieces of Phidias, Praxiteles, Polygnotus and Apelles. They carried art to that high state where it became the admiration of all succeeding ages. In architecture they give us beauty and grace and strength in the Corinthian, Ionic and Doric columns and capitals.

Maturity in Greece was ushered in by Aristotle, 384 B. C. He formulated the Inductive Method in Logic, and he taught that organic beings form a connected chain. But in physiology he thought that the brain is devoid of blood and of sensation. In this age Euclid develops geometry, 300 B. C., and Archimedes

(287 B. C.) writes on the sphere, cylinder, endless screw, and many other physical problems. Eratosthenes (276 B. C.) unfolds the first principles of geology, and Hipparchus discovers the precession of the equinoxes and makes a catalogue of 1,080 stars (160 to 145 B. C.). The Greeks had now risen far above the vague fancies of their early philosophers. They had begun to lay the foundations of exact science. But they were not to rear the superstructure.

We have touched the fairest side of Greek national life. On the other hand, they had been warlike and ambitious from the beginning of their history. The great poems of Homer had immortalized the deeds of their fighting heroes. And now, in this age of maturity, the conquests by their mighty Alexander tempted them to broader and foreign arenas of martial glory. They soon fell beneath the heavier and more sturdy blows of Roman warriors. It was Roman ambition that prematurely stopped the development of Greek intellect.

ROMAN LIFE AND FORMS.
The eastern wave of civilization had reached the countries of Greece seven centuries before it spread over Italy. And so in arts, in letters, and in schoolmasters the Romans had become diligent borrowers from the Greeks. The Roman who was ambitious to be learned must have a Greek for a tutor. The two



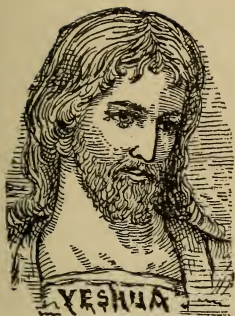
languages, Greek and Latin, were closely allied. This close intermingling of the two nations gives propriety to the combined title of Græco-Roman civilization.

The intellect of the Romans was like their bodies, stout, plodding and heavy set. The delicate and perfect chiseling of the nostrils in the Greek nose indicates refinement and sensitiveness of the intellect. The common Roman nose was less finished at the end; its possessor desired knowledge for the sake of power and conquest rather than for its nobler uses. Aggression and self-defense were the faculties that gave character to the Roman nose. The master magician, Daniel, might well represent ancient Rome as a diverse beast, a compound of bear, lion and wolf, with great iron teeth.

After rising to its meridian splendor as a great world-power, Rome itself sank in the luxury gotten from the spoils of its warlike robberies. Its great international roads were only extended warpaths. And its policy of unity between nations was summed up in two words—police and taxes.

In the reign of Constantine, 325 A. D., the empire was officially Christianized. From that time on, through a thousand years, the Roman political power declined and fell, and side by side with this decline, rose the power of Religious Romanism, not less stern, aggressive, and bent on a world's conquest.

In her long career Rome had emblazoned on the historic record her share of great names, Cato, Cicero, Julius Cæsar, Pompey, Horace, Virgil, Augustus and the rest. In civil engineering and in the arts of language and oratory they left enduring and worthy monuments of their genius.



THE CHRISTIAN CIVILIZATION planted its roots in the fertile soil of the Greek and Roman. Here it received the abundant endowment of literature, of art and of wealth. It started forth in the direction of spiritual life and culture, of universal brotherhood and peace. It held out the brilliant promises of a kingdom of universal righteousness on this earth. Yet the Christian Church made no serious and persistent attempts to fulfil the noble promises of the Hebrew prophets and of Christ. In its long reign it turned aside from all these and gave us instead its list of dogmas, sects, poverty, charities and selfish monopolies!

Christian teachers built up elaborate systems of theology in place of a system of life. The church became an Egyptian sphinx, with riddles for doctrines. Its head was indeed human, but its body was a beast. Had Christian teachers accepted in good faith the teachings of Christ and the prophets, how widely different would have been the development of modern Europe!

Christianity became master of central and southern Europe, of western Asia and of north Africa, the wealthiest and most civilized parts of the world. What did it show for all this? It brought forth the Middle Ages, a thousand years of intellectual stupor, of moral twilight and of social degradation.

We may well ask "If Christianity can be called successful when, after nearly two thousand years'

experience of it we find the mass of the population in Christendom struggling for bare existence, like ravenous brutes in their scramble for food?"

With eighteen centuries in which to do its work, the Christian Church stands to-day and confesses itself helpless before the great evils that curse the world. Like the statesmen themselves, the church has no remedies to offer. It stands dumb before the problems of labor and capital, of crushing poverty and widespread crime. Its leaders seek to justify their indifference and ignorance by falsely quoting the words of Christ to Pilate, "My Kingdom is not of this world." What he did say was, "My Kingdom is not of this Order (kosmos);" it could not, like the Roman, be established and maintained by the sword, by physical force. It must rest on the Truth instead. Therefore Pilate said to the Jews: "I find no fault with this man. He is not guilty of sedition, of getting up a rebellion against the Roman arms, as you have charged against him." Christ told his disciples to pray "Thy Kingdom come on the earth." And the Bible does not say anything about a "Spiritual Kingdom" in distinction from a literal or material one. Christ was to "sit on the throne of his father David," and certainly that throne was civil and political, as well as religious, in its legal and actual functions.

SEMITIC INFLUENCE. In the twelfth century, when the Christian Crusaders from Europe came in contact with Arabian science and learning at Jerusalem, it stimulated them anew to the study of science. In the south of Europe, the Jewish and Arabian scholars who had come through Spain, lighted the fires of science from that direction. Thus it was the

influence of Semitic thought that roused Europe from the intellectual slumber of the Middle Ages. In astronomy, physics, chemistry, medicine and mathematics, the long list of illustrious men of that race prepared the minds of Europe for its age of intellectual maturity.

AGE OF SCIENCE. From the fifteenth to the nineteenth centuries the discoveries of Copernicus, Columbus, Galileo, Kepler, Newton, Harvey, Dalton, Cuvier, Gall, Mayer, and a host of other great minds paves the way for a new civilization. In that



vast evolution of knowledge the scholars of Italy have taken no small part. But the Italian race itself had been changed from the old Roman by the infusion of new blood from other races. In the fourth and fifth centuries of our era the invasion of Italy by the Goths, Vandals, Huns and others resulted in the political fall of Rome. But Italy gained more than she lost. The new mixed race of Italians turned their thoughts to the conquests of art and science. It was Gothic blood, and not simply the old Roman, that stirred the genius of Giotto, Raphael, Michael Angelo, Titiano, Galileo, Torricelli, Visalio, Galvani, and many others high on the roll of fame.

It is very true that the vast growth of modern science has taken place in Christian countries. But this growth has not been stimulated or fostered by the church or its leaders. For the church, whether Catholic, Protestant or Greek, has sought to divorce religion and science as widely as possible. And

whenever science has touched the great problems of life, spiritual truth, or government, then the church has pronounced her bitter anathemas. Or, she has resorted to the thumb-screw and the stake. In all this the church has gone square against the plain and strong words of the prophets and of Christ. We shall speak more of this mistake in our seventh chapter. We shall there consider the actual relation that science holds to religion.

The great lesson of geology is this—that through all the many species of vertebrates, from the fish up to man, the spinal cord and lower parts of the nervous system steadily diminished in size and importance, while the brain quite as steadily increased in relative size and perfection of structure.

This all-sweeping law must also apply to the brain itself when we compare its lower with its higher parts. It must determine the successive development of its organs from the base to the top, as illustrated in the phases of personal life. The ultimate rule of the higher faculties of the brain is thus secured by a law as extensive in its sway as the existence of organic life itself. No hand of conservatism can turn back that upward march of humanity.

Not only does the brain of man greatly predominate over all other parts of his nervous system, but the other organs of his body, especially his limbs, have become modified so as to be in harmony with this advance in brain structure and volume. In man alone of all animals the arms or front limbs are entirely relieved from the duty of locomotion and are devoted wholly to the service of the head. Man alone has a real hand, with each one of the fingers

opposable to the thumb. Upon this structure and form of the hand depends the possibility of all works of art and skill.

Whatever may be the functions of the top brain, these well-proved laws of science assure us that these functions must rule in the future of national life, in the political conduct of men, no less than in that of the individual members of society. It therefore becomes a question of importance: What are these faculties of the upper brain? They are those that lead to science, inspiration, culture, philanthropy, religion, justice, devotion, love, stability, aspiration, self-control and civil order. They are faculties that by universal consent occupy the highest place in the estimation of civilized men.

MATURITY OF THE RACE. In Europe and America, in China and India, the nations have passed through the phases of national childhood and youth. They have entered the great phase of maturity. We therefore have the supreme warrant of science in affirming that new institutions will be formed in which the guiding hand of science will determine the plans, the methods of action, and the forms of structure.

In the phases of youth it was the faculties of memory, it was human experience and history, that guided the statesmen and kings. That was the best light they had. But in the phase of maturity the higher faculties of reason, with their product, science, become the guiding light. And science means exact knowledge, such as all can understand alike. Science can always count and measure.

Whatever a nation does, is the work of its component

units, that is, of persons. Collective action all comes from the faculties of individuals who make up the aggregate. We know from the old Egyptian mummies that man has now exactly the same number of faculties, exactly the same kind, that he had four thousand years ago. They are simply developed to a higher degree, that is all. In other words, the constitution of man remains permanent in its form and its parts. The science of man, with its branches in mental science and sociology, can show us a constitution of society which will be equally permanent in its forms, and yet will admit of continuous growth and social expansion. It will carry out all the laws in the nature of man and thus secure the conditions of universal happiness for the race.

Social Structures.

CHAPTER SECOND.

SOCIAL STRUCTURES.

THE INSTITUTIONS OF SOCIETY should be in harmony with the nature and the wants of man. This truth may seem self-evident to the average reader. Yet it has never been made the basis of action by the builders of our social structures. But science accepts this truth as the only safe and intelligent basis. Otherwise, we would be compelled to think that the constitution of man is in its very essence false and bad, and therefore institutions should be formed and carried on without any regard to man's nature, his desires or his needs. The subject is so important that it must have several pages of discussion.



A life in some form of organized society is the natural condition of man. If we look at the maps of the brain we shall see that one-third of the faculties are social in their very nature. That is, these faculties of love or affection, in any person, must always have some other person as their object of action. Thus I cannot exercise my faculty of friendship unless there is some person for me to love as a friend. I cannot exercise my parental love unless there is some

young person to be its object. And so of each social faculty. They bind human beings together in society; they make association essential to our normal existence. More than that, science teaches us that every one of these social faculties must involve the intellect and the will in order to express itself. It is therefore a scientific truth that all of our faculties are involved in the relations of society. Man is not like a tree in this regard. You cannot isolate him from his fellows and yet have him live a full or complete life.

The eye of man adapts him to live in a world which is full of light; the ear is fitted to a world where sounds are made, and the lungs are adapted to a wide-spread atmosphere. And it is equally true that the social faculties adapt man to live in a world of society.

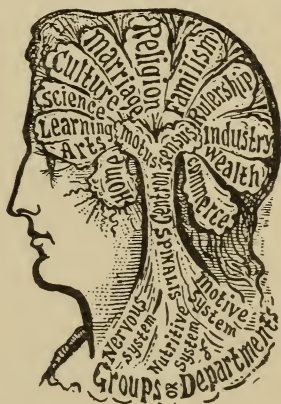
As the eye can only be satisfied by light, the lungs by air and the stomach by food, so each mental organ has wants of only one kind. Thus the wants of Friendship always relate to friends in some way; those of Integrity can only be satisfied by justice or right, and those of Reason by clear or scientific truth. For a negative example, you cannot satisfy the organ of Dignity by proving that a mixture of red and blue may produce a purple hue. But such an experiment might gratify the organ of Color.

All men admit that we may learn the laws of vision for the eye, or the laws of breathing for the lungs. But the brain is not an abstraction. It is a real physical organ, as much so as the eye or the lungs. It must be, therefore, that the social organs of the brain have natural laws to govern their normal action. And we may learn and apply these natural laws to our social institutions.

A TRUE SOCIAL SCIENCE must do something more than to merely study the lessons of past human experience. Classified statistics do not constitute sociology. If true to its work, on the basis of natural laws, sociology must describe a definite constitution for society, including all of its necessary institutions and departments. We will now show on the next page how this must and can be done. We shall base the argument upon propositions which become self-evident when once they are stated.

If the method here proposed is new, then let our readers remember that science always gives us new methods, as in the railway, the telegraph and the telephone. And the new methods are quite as certain as the old, aside from their great gain in other essential qualities.

THE WANTS OF MAN in society arise from every group of faculties. They are a natural outgrowth. For example—the organs of memory, attention and language create the desire for knowledge and lead us to organize a system of schools where useful facts and truths may be easily learned.



These faculties also impel us to preserve public records, with history and literature.

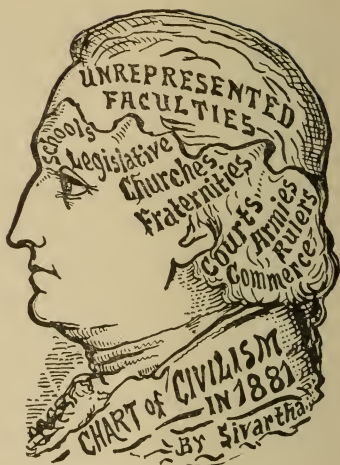
The mental faculties of appetite and of the other senses in that group lead men to unite so that they may cultivate the earth for food; they induce men to form railway and other companies which may

nerves that connect the stomach with the brain, then we should not be conscious that we needed food. We should not be hungry. And so of all parts of the body. A million of nerve fibers reach from these parts and connect them in responsive action with definite parts of the brain. Each muscle depends for its stimulus of movement upon some fibers of the brain which have the same direction as its own. And so of heart, lungs, kidneys and other vital organs. A special part of the brain is in close sympathy with each one. It therefore follows that in representing the organs of the brain by officers of society we also make direct provision for all bodily wants.

For convenience of reference, we condense in a table below the twelve groups of collective wants.

- 1st. Institutions based on the collective wants of man.
- 2d. Art, beauty and utility in harmonic homes.
- 3d. Our unity with cycles, seasons and dates.
- 4th. Science with inspiration the measure of truth.
- 5th. Personal, social and physical culture.
- 6th. Dual work and offices for the two sexes.
- 7th. Religion as the responsive unity of all life.
- 8th. Members grouped by character in twelve departments.
- 9th. All officers chosen or deposed by election.
- 10th. Organized industries; assurance against want.
- 11th. Collective ownership for things of collective use.
- 12th. Equity, peace and unity between nations.

It is evident that the faculty of memory in each member creates the want and makes that member willing to unite with the rest to select one person as secretary or recorder, that he may remember for the society by keeping its records. In doing this work he is filling a natural function of the organ of memory as much as when he is



remembering or noting a fact privately for himself. And so, too, the treasurer fills a natural function of the organ of economy when he is caring for the public funds. If the members had no organs of memory and economy, then they would never think of having a secretary or a treasurer. They would not be conscious of any such wants. Thus each officer really corresponds to some leading mental faculty.

A DUAL PHASE OF ACTION thus belongs to every mental faculty. One phase relates to our private, individual life. The other phase relates to our work and association with others in the collective actions of society. This latter phase is centered in the duties of the officers. The psychologists, scientists, and phrenologists have overlooked or omitted all these functions of the mental faculties which produce collective wants and lead to institutions.

CIVILISM IN 1881. A critical and extended examination of all institutions up to the year 1881

proves that they have left unrepresented all of the collective wants from the upper and nobler half of the brain. This is marked in the initial engraving on page 52. That is the best result that mere human experience and the light of history could give.

For three thousand years the statesmen undertook to learn these collective wants by the light of experience. They studied history with great diligence. They knew the conduct of men. The proud result of all their vain labor is summed up in our engraving of civilism. Their method itself was essentially imperfect. And they discovered less than half of the wants of man.

The statesmen knew, as Blackstone says, that "The wants of individuals are the natural foundations of society." But they had no standard of completeness. In a disconnected way they multiplied institutions and officers by the hundreds. Thus we find state and municipal governments, legislators, senates, councils, cabinets, bureaus, agricultural societies, literary and scientific associations, public and private schools and colleges, art societies, fraternal and secret lodges, labor unions, railway companies, fighting armies, etc. Each of these has a board of officers, numbering from three up to forty.

With all this complication one would think that nothing should be left out. Yet the result was the vast deficiencies we have already noted. To imitate the past was to work after very imperfect copies.

The statesmen knew the outside of men. That was like studying the outside case of a watch. You could not learn its mechanism; could not learn to

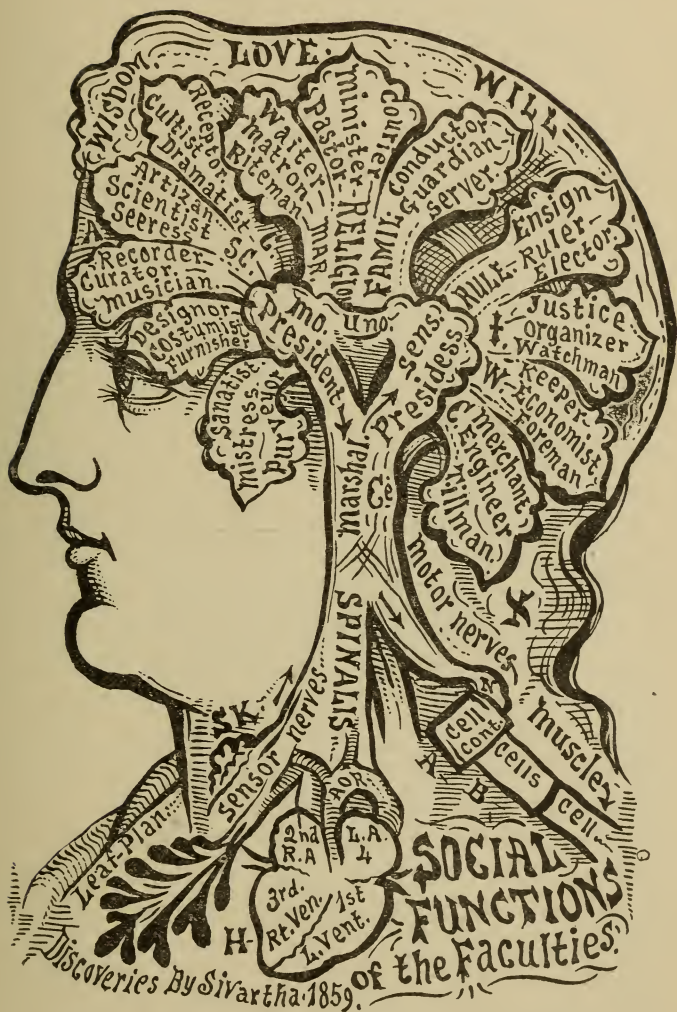
make one in that way. The statesmen did not see the vital connection between our social wants and the faculties. They did not discover the actual and living factors of society in the brain itself, the direct source of all human activities.

Now that this discovery is actually made, we can lay out the plan for a complete social organism. The engraving of social functions illustrates this plan, on the next page. In the place of each faculty is the title of an officer. In this model the two brain centers are represented by a president and a presidess. The marshal is in place of the centron, a great nerve center through which the brain and the body act and react upon each other.

THE PRESIDING CENTERS of the brain, the motus and sensus, are duplicated in each hemisphere of the brain, right and left. The sensus or back center receives the impressions which come in from the various parts of the body on the nerves of sense. It is essentially receptive, and it dominates in the character of woman. But, like the front center, it has some power to combine and modify as well as to register these impressions.

The motus is the center for motor impulses. It combines currents from the intellect, the feelings and the will and sends these directive currents out to the various muscles throughout the body. The motus is essentially directive and positive. It dominates in the normal character of the male sex or man. Hence we have both a male and a female center in society, a presidess as well as a president.

These brain centers originate our idea that many different functions can be combined into a unity; that



a number of persons, each doing his special part, can be united and work for one common end. If these brain centers did not exist in man, then there would never be any concert of action, any combined labor among men. We could never have any distinct conception of such a thing. These centers exist in the ants and the bees as well as in the humans.

The model on the preceding page should be compared with the engraving on the next page. This exhibits the general plan of the brain as now understood by scientific men. The faculties have definite lines of action. Two chief lines balance all the others. These two lines form the major and minor axis of an ellipse, as shown in the lower right-hand corner. They reach from front to back and from top to bottom.

Each mental organ consists of a group of microscopic nerve cells at the surface of the brain and of a bundle of fibers which extend from these cells to one of the brain centers. The functions gradually change as we pass from one region to another on the surface.

THE CENTRAL OFFICERS preside at meetings and collective work. They entertain and put motions to vote. They each have a single vote like the members. But they have no veto power as in civilism. They may offer suggestions or make arguments upon motions which originate with officers or members. And they have a right to appoint temporary officers to fill vacancies.

THE PERFECT MODEL. Our mental classification gives us twelve groups and thirty-six faculties. In another place we will give reasons for this analysis of the mind. We may note here, however, that the

existence of all these faculties is admitted at the present day by our leading scientific men and by our literary writers and linguists. But in English we have no single word for sex-love, or for parental love, nor for familism.

A complete social organism will therefore have twelve departments and three officers for each one, as given in the next table. There would also be three central officers. In the table, a sub-department is placed under each officer. Each of these thirty-six admits of divisions into lesser and lesser groups, each under an assistant.

The wife of the marshal acts as an assistant to him and this makes a complete list of forty officers, when the whole is fully organized.

In past times every step in social growth was an attempt to represent some of the social wants. With science to guide us, we may now carry out to completeness that which has been done in a blind and fragmentary way from the earliest ages.

DEPARTMENTS OF SOCIETY.

CENTERS—President and Presidess; Marshal.

CULTURE.	RELIGION.	RULERSHIP.
RECEPTOR, Receptions.	PASTOR, Worship.	RULER, Leaders.
CULTIST, Reform.	MINISTER, Interchanges.	ELECTOR, Elections.
<i>Dramatist,</i> Manners.	<i>Courier,</i> Messages.	<i>Ensign,</i> Displays.
SCIENCE.	MARRIAGE.	LABOR.
SCIENTIST, Laws.	RITEMAN, Rites.	JUSTICE, Judgment.
SEERESS, Esthetics.	MATRON, Heredity.	ORGANIZER, Employment.
<i>Artisan,</i> Inventions.	<i>Waiter,</i> Luxuries.	<i>Watchman,</i> Environs.
LETTERS.	FAMILISM.	WEALTH.
RECORDER, Records.	CONDUCTOR, Schools.	FOREMAN, Factories.
CURATOR, Publication.	GUARDIAN, Amusements.	ECONOMIST, Economics.
<i>Musician,</i> Literature.	<i>Server,</i> Service.	<i>Keeper,</i> Stores.
ARTS.	HOME.	COMMERCE.
DESIGNER, Designs.	PURVEYOR, Foods.	ENGINEER, Roads.
COSTUMIST, Costume.	MISTRESS, Housework.	MERCHANT, Distribution.
<i>Furnisher,</i> Furnishing.	<i>Sanatist,</i> Sanitation.	<i>Tillman,</i> Fertility.

As examples of the lesser social groups, take the sub-department of Designs. It divides into designing, engraving and sculpture. That of Records includes statistics, history and libraries. That of Environs includes climate, herds and storm signals. That of fertility includes textile culture, fertilizers and forestry.

THE RANKS OF SOCIETY may, for convenience, be arranged as Primary Bands, Cities, Counties, States, Nations and the inter-nation or Unation. All these have the same constitution, the same number of departments and officers, because the wants of all of them are alike in kind. They differ only in the extent of territory and the amount of details which each one includes.

For illustration, it requires the same kind of knowledge and skill to build a short road that only reaches through a town, that it does to build one that extends across the country of a nation. The city road would be built under the supervision of the City Engineer and the national road under the National Engineer.

THE CHANGE OF TITLES for different ranks is only made in those of the two central officers. Thus, in the Primary Band these are called the center and centress; in the city they are mayor and mayoress; in the county they are count and countess; in the state, governor and governess; in the nation, president and presidess, and in the unation they are the prince and princess.

By this uniformity of constitution and of titles it is always easy to understand the relations which the different ranks sustain to each other, the manner in which they coöperate for all collective purposes.

And the boy or girl who learns the duties of the departments and offices in the town at home, will understand without further study those that belong to the county, the state or the nation. This uniformity is not only natural and true, but it is a great advantage over the disorderly ranks and confusing changes in the old forms of civilism.

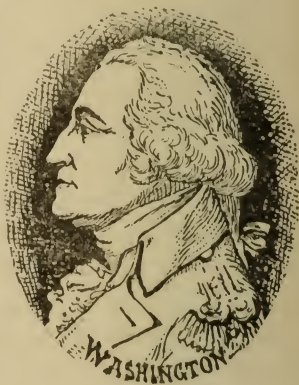
REPRESENTATION. The wants of the lower ranks are answered by the higher through like parts of each. Thus, if a want in regard to food arises in the home department of some town and cannot be answered there, then it would be represented in and answered by the home department of that county. Or, if necessary, it would be carried up to the corresponding department in the state or nation. These wants may be made known through any of the ordinary channels of communication, by messages, or by special delegates. All the interests, employments and professions of society are organized, secured and represented in the twelve departments with invariable certainty and equality.

Thus, for the first time in history we have the plan for a truly representative system of government. In parliaments, reichstags, assemblies and congresses, the members are sent to represent so many people, or such and such a part of the country. But they do not represent the wants of the people. Except by accident, or in a disorderly way, or in case of unusual good will and intelligence. It was the inherent imperfection and badness of those systems that brought about such abortive and expensive results.

In the plans as here proposed we have forty officers in place of the hundreds which belonged to the plans

of civilism. Yet we represent much more; a greater number of functions. In the matter of economy as well as of clearness in working, the advantages are greatly in favor of the new order. The new is both order and harmony; the old was confusion and uncertainty.

ELECTIVE OFFICERS. The act of voting is the formal expression of a choice in regard to officers, laws, or social action. As this choice or preference naturally exists in all adult persons, therefore all have a natural right to vote. This right cannot be created or conferred by men. But we may state the conditions and methods for its expression. These conditions may vary with different phases of social evolution. We are here stating the methods after society becomes definitely or permanently organized.



All regular officers are elected, or impeached and deposed, by a direct and free vote of those they are to officially represent. But in case of vacancies, the centers, or the remaining officers, may appoint temporary officers until elections can be held.

THE AGE FOR VOTING is fixed at the twentieth year, except in the minor or Pearl and Culture Bands, where the children and youth vote at the seventh and thirteenth year of age, respectively. In these classes and in the schools, the young learn how to

vote before they have attained adult life and have become fitted for its responsibilities.

MANNER OF VOTING. The voting members of each Primary Band gather at their own central mansion at nine o'clock in the morning of election day. The tellers, that is, two assistants of the elector, pass ballots containing the names of all the candidates, to each member. The members mark with a red pencil against the candidates of their own choice; the tellers then collect the folded ballots, the curator and elector count them and announce the result. This is set down by the recorder and reported to the central government. It thus needs only forty-five minutes to elect the national officers and the others who may be elected at the same time.

In the lesser groups the leaders may be elected by the members of each group.

A CANDIDATE should have served well in some lower office and be well-known to the public. This would save all need for the noise, expense and clap-trap of political campaigns. A scientific examination should test the candidates' knowledge as well as the possession of those special talents required in the proposed office. The best persons must be secured for office by making the standard of qualification as high as possible in each age. The engineer must be a master of engineering, both civil and motor; the purveyor must thoroughly understand agriculture. And so of the rest.

If an officer does not behave well, does not fill the office in a satisfactory manner, then the people can vote him out of office just as they voted him in. They have the power of recall or impeachment in

their own hands. But the charges against an officer must be sustained by competent witnesses and in a formal manner.

THE TIME OF ELECTIONS is set for the 9th day of March, the officers entering upon their official duties the 21st, that is, at the Vernal Equinox. This is the true beginning of the year and is thus recognized in the new social order.

Of course elections to fill vacancies or to form new bands may take place at other times than March 21st.

In the primary band and city the elections are to be held every year; in the county, every three years; in the state, every five years; in the nation, every seven years, and in the unation every twelve years.

NOMINATING CONVENTIONS are held twelve days previous to election, in the county, state or nation. These conventions are presided over by the two centers, the recorder, curator and marshal, who already hold office in that county, state or nation, as the case may be. These officers must leave the mass of the numbers entirely free in their election of nominees and in the presentation of subjects for political or social issues. Where two or more political parties exist with different issues, each shall be given one day for a convention. National conventions consist of three delegates from each state, chosen by mass meetings. State conventions have two delegates from each county, chosen in the same way. Only delegates, and not officers, have a vote in the conventions.

THE ARGUMENT. We have thus sketched a plan for the social organism which is in harmony, in each part, with the constitution of man. We have

not based the argument upon analogies. We have dealt with the direct and natural functions of the faculties. If the social and other faculties do not produce social or collective wants, then where do such wants come from? And if institutions do not supply these wants, then it is evident that we do not want the institutions.

It has been a common but false idea that there might be a number of different plans of government, and that any one of these might work successfully in securing universal happiness. Let us consider this for a moment. Suppose that we could put the soul or mind of man into the body of a horse, would the mind be able to use this just as well as it did the human body? With the feet of the horse instead of hands, could we cultivate the earth, build houses and write books? It is equally true that the very forms of our institutions, the plans of social structure, are of immense consequence. For these are the instruments, the organs, with which we do the collective work of society.

THE TRANSITION STEPS to the higher social order are simple, easy and natural. At the end of the sixth chapter we shall briefly sketch the simplified plan for fraternal and culture bands. Each of these will require only twelve officers instead of thirty-six. They are schools for learning the new system and they take the place of all other fraternal orders.

We have not sketched a Utopia, a fanciful scheme which requires an experiment or trial before we could know whether it would be successful. If in past times men have blindly represented a part of the faculties by officers, then we are entirely certain that we can

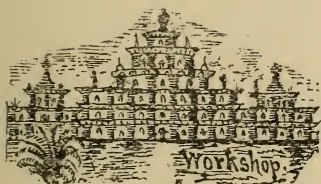
now go on and represent all of the group and faculties by departments and officers. For our list of faculties is complete, as human life is now known. We, therefore, know in advance that the new social order will be more successful than any of the past forms of social structure.

In the following chapters we shall see how the natural laws furnish us an ample and specific guide in the administrative, judicial, industrial and all other actions of a perfect social order.

Social Mechanism and Action

CHAPTER THIRD.

SOCIAL MECHANISM AND ACTION.



A MILLION MEN when they are associated acquire no new powers or faculties. They only attain better conditions for using those which they already possess. They increase the quantity and the freedom of their powers, but do not change the kind. One man has not sufficient power to build a railway, a steamship or a temple. Unite a million men and the difficulty vanishes.

The units of society are persons. And whatever powers or rights society may possess, it must derive these from the nature of its component units. The laws of social order, of social action, are therefore in the nature of man. In every act of life man is either acting in harmony with some law of his nature or else he is acting contrary to some inherent law of his being.

Long ages passed before man could rise to a conception of this truth and of its application to public affairs or collective life. The old Romans thought it perfectly right for the rulers to invent or enact laws which pleased or favored themselves. It was the business of the people to submit and not complain.

Yet if we look through the Justinian Code, 427 B. C., we shall find that many of its laws were simply codified statements of what had been established by ancient customs. In the Mosaic Code of the Bible the same is true. Many of its laws and provisions simply stated in a more formal way things that had long been done among the Israelites and the surrounding nations.

IS IT RIGHT then, for each man to follow his own momentary impulses in acting with his fellowmen, in affairs of public life? Even in a mob, men do not follow individual impulses. All the great ends of social or collective action would be defeated in that way. Collective action requires a common thought, unity of purpose, and a well understood plan of procedure.

Men differ in their ideas because they have been born with their faculties developed in different degrees and they have been subjected to different conditions and influences, as well as teachings. Men come to agree with each other by a comparison of their ideas and by a common study of how their ideas originated. In this way they at length reach that form of knowledge which is called science.

Now scientific proof is always of such a character that all persons can understand it alike. Hence, science can always be made a safe basis for united action among men. Science discovers laws; it does not invent them. Science explains, but it does not dictate. Its authority is not personal, but is in the very nature of the objects which it describes.

When man was created, or evolved, as you like, nature did not overlook the great fact that in all

ages men would associate with each other in communities and nations. Nature did not overlook the twelve social organs in the brain through which this result has been made a perpetual necessity. And nature did not fail to provide inherent laws for these organs of the brain, just as she did for the eye, the ear, the lungs, and all other organs. We cannot invent or make laws for seeing, or hearing, or breathing. Neither can we make nor invent true laws for the social faculties, for the collective action and institutions among men.

But we may discover and apply these laws. We may supply them with good conditions for their higher and more perfect action, and we may write these laws down in clear statements so that they shall become the common basis of agreement and collective activities.

"SOCIAL STATICS" should describe natural institutions, and "social dynamics" should describe the natural and therefore normal actions of society. If man's faculties did not remain permanently the same, then these two branches of sociology could not be developed and would never reach a practical form.

No legislative or other lawmaking bodies are required in the new social order. Instead of these, we have the departments of science. The work of discovering, formulating and applying the natural social laws is done in these departments and those of culture. In any case where the required natural law is not known, then temporary expedients may be adopted until the natural law can be discovered.

Discoveries and inventions are made by members who are in various departments of employment.

How shall these be brought before the people and adopted? The Swiss Referendum requires that in any case of new measures there may be a petition presented to the government and this must be signed by a certain per cent. of the voters. In Britain or America this per cent. would require, say 250,000 voters. Then the matter is submitted to a vote of the whole nation for acceptance or rejection.

But the Swiss form of procedure is not in harmony with the great laws of evolution. For discoveries and inventions are not made by masses of men, nor by communities and nations. We all know that they are made by single persons, or in some cases, by two or three. And when a man makes an invention or a discovery which may affect the public welfare, he has a natural right to be heard before a competent tribunal. In many cases he has used as the basis of his work all the knowledge on that subject which the world had accumulated, as in the case of Watt with his engine and Morse with the telegraph. After performing this great and beneficent task, what justice or wisdom is there in requiring him to go before the general public, here and there, as he may, finding by accident those who may become interested in his new work, until after years of effort he may gain the requisite number of petitioners? Nothing but stupidity or brutality could require this. In the case of Morse, he petitioned a congress in which not one member was fitted by training or by knowledge to judge in the matter.

It is high time that humanity should learn that it is natural to grow, natural to learn and to invent new things. And that the man who leads in this

growth deserves the wise assistance and not the indifference or curses of the public.

The people often have had to wait long years for benefits which might have been secured at once. Instead of the older methods we propose

THE RECEPTUM. It is one function of the receptor and the cultist, acting in connection with the officers proper for each case, to receive, examine, and prove all proposed measures, inventions, or discoveries which may affect the public welfare, and to formulate these so that the presiding officers shall duly submit them to a vote of the people for acceptance or rejection.

The receptum is therefore a division in the department of culture. Its working can be easily understood. In order to fill their general duties these two officers must keep themselves familiar with the progress of science, art and invention. They must be trained in critical judgment and in the methods of testing in science. Let us suppose a case. In some town a member makes a scientific discovery. He works it out to the best of his ability. Then he goes to the cultist and receptor in that town and lays the discovery before them with its proofs and the steps he has taken in making it. The receptor calls in the scientist, for the case will require his kind of knowledge and judgment. Together they examine the discovery with its process and the validity of its evidence. They may, perchance, detect vital defects in the reasoning and thus show the discoverer that his work is yet incomplete, or inconclusive. Or, they may approve it in every part. In the latter case they would prepare a statement of it for submission to a popular vote.

The officers may consider the matter of such widespread interest that it should come at once before the whole nation. If so, they would send the whole to the national receptor, with their approval and comments. Or from the common fund they may furnish the discoverer means to go in person to the national receptor.

If it were a new invention in engines that was made, then the receptor would call in the engineer to assist in his work of examination. And so of other departments. It might even require the judgment of officers from several departments. Some of our readers may fear that to thus open wide the official doors for a hearing of new things would at once invite a flood of worthless notions; that the receptum would be crowded with cranks, sane and insane, each insistent with his claims to attention. This objection is not a serious one. In the first place, there is not a multitude of cranks with inventive minds in any one town. And if there were, it is better to waste some of the time of one officer than to bother the whole public with their worthless projects. And when a new education is once established there will be few cranks and no monomaniacs in the community.

Important measures for public action, either temporary or permanent, are often devised by single persons. In all cases these can be brought before the people through the receptum. Nature made man a progressive being, capable of evolution and culture, by planting the organs of culture in his brain. These organs make him desire to learn new things and apply the new knowledge to the continued

improvement of his own character and the betterment of his conditions.

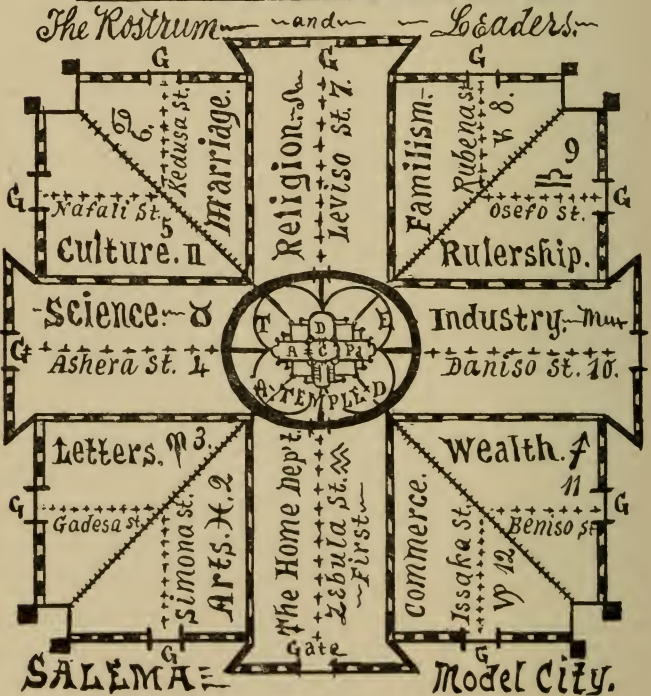
THE MODEL CITY has twelve departments, each filled by people whose natural talents and training fit them for that kind of employment. These departments are divided into sub-groups so as to include all the varieties of work necessary to make up the complex life of society.

The plan on the next page shows that the arrangement of these departments is copied from that of the brain. This enables them all to respond and co-operate with each other in a perfectly natural manner. And this also means that they have the highest degree of dispatch, economy and convenience in all their operations.

Quite recently the chief officer in the largest city of the world asserted in public that there is not a large city on earth that is planned with reference to the inventions, utilities, knowledge and requirements of modern civilized life! The man of science, then, has a good reason for wishing to present a better model, one in which wisdom, beauty and utility shall have equal expression.

The various employments of society bear certain fixed relations to each other. And these relations depend both upon the very nature of the employments and upon the arrangement of groups in the brain itself. For it is this internal order of parts among the faculties that makes us conscious of external order and adapts us to work in outward arrangements.

A single example will illustrate this point. On the south side of the city three departments form the



THE MODEL CITY.

base line. The first, or that of art, produces various objects of use and beauty, more than are needed for home consumption. Then the third department, or commerce, may distribute this excess to various countries where needed. But the middle department, the home, must have led men to build houses, workshops and store-houses, before the manufacturing arts could be developed to any practical extent and therefore, before commerce itself could exist. The home is, therefore, the vital pivot of action for both art and commerce. In the brain, these two last are on each side of the home group, so that they can always respond to each other.

Looking at the west side of the city, or the front of the brain, we find letters, science and culture. The faculties of letters, or learning, that is, memory, attention and language, acquire, arrange, and store up or record the masses of necessary facts. These facts must be analyzed, reasoned about, and their underlying laws found out by the faculties of science or reason, in the middle department. Then the new truths, or rules, thus elaborated, can be turned over or passed on to the third department or culture. Here the work of applying truth is done. The officers here take the lead in seeing to it that the new truths are put to their best uses in securing human happiness. Crude facts, either massed or isolated, are not practical. Their value only comes when reason has educated principles from them. Thus we see that science is the necessary middle pivot of letters and culture.

Again, on the east side of the city we have wealth, industry and rulership or ambition. Here we may

readily perceive that the ambition to excel, to improve ourselves and our fellows, would amount to little if industry did not impel us to useful labor, and if wealth did not lead us to store up or take good care of the things which industry had produced. We see the close and constant dependence of these three departments. The most perfect government is that which most favors the complete organization of industry.

In the front brain, the counterpoise or balance of industry is science. For science discovers and formulates laws and rules; then industry uses these in every part of its varied work, giving them a material embodiment.

The counterpoise of ambition in the back brain is the group of culture in the front. That is, however ambitious we may be, we cannot rise actually higher in the ranks of life except through actual culture, by becoming wiser and better. And all assumption of social rank merely because of wealth, is unbalanced and false assumption. It indicates a lack of wisdom in those who assume and in those who assent.

Marriage naturally results in its counterpoise, the family. We cannot exalt one very high without the other. Without the family as a center of increase, there could be no communities and nations. And there could be no religion. For history proves to us that religion has always dealt with the relations of man to man no less than with the relations of man to superior or spiritual beings. And it has always deduced, more or less, one from the other. Differences of rank and power are conspicuous among men, and easily form a basis for conceiving of beings still higher

than man. We may say that the true function of religion is two-fold. First, it must unite the entire human race in one composite and responsive life. Second, it must unite and harmonize man with the living, conscious beings of the universe.

UNITY OF PLAN. In this phase of our general subject we may well consider for a moment why we should not divide up the necessary functions of society among a large number of quite independent organizations and leave the mass of the people free to support and use these as they please without any concern of the civil government. This would be the kind of social growth that has taken place in the United States, in Britain and various civilized countries. It seems to the people themselves that it secures them a great amount of freedom. However, we shall soon see that it involves an unnatural and unhealthy social growth and defeats its own apparent ends. The argument here will rest upon laws of evolution now accepted by science.

EVOLUTION OF TRADES. The division of labor the specialization of functions, governs the social progress of man no less than it does the development of the entire scale of animals. For example, in national infancy each person performs every kind of labor pursued by any of the rest. Each man, in a rude way, is at once hunter, farmer, mechanic and merchant. The savage chief hunts his own game, dresses and cooks it, gathers his own nuts and wild fruit, and makes his own rude clothing of skins, and his ruder hut of sticks and mud.

In later periods, persons who show particular aptitude for special kinds of labor begin to devote

themselves to the kinds in which they excel, and thus the various trades and professions come into existence. One man makes arrowheads, another blankets, another huts and so on.

Along with, or out of, this division of labor there grows a far greater degree of mutual dependence between the members of society. And this increases just in proportion to the advance of civilization and social unfolding. For the men of each trade must exchange their products with those of other trade .

While all this makes men more dependent, it also makes them more completely individualized. The most highly individualized man is the one who has depended upon the greatest number of his fellow-beings for the materials, the comforts and the luxuries of life. For he has been subject to the greatest number of diverse and moulding influences.

The farmer is dependent upon the tradesman, the grocer, the carpenter, the shoemaker and those of a hundred other trades. And conversely each of these is dependent upon the farmer and upon all the others. The greater the degree of individuality the greater is the degree both of mutual dependence and of social unity in action and in feeling.

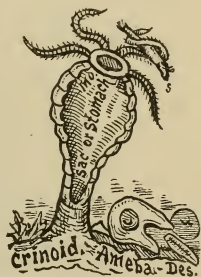
But while labor and exchange remain in the stage of competition, there is no formal or practical recognition of these mutual dependencies. There is no provision to secure organized unity of action. Instead of this, we only find a selfish antagonism of interests. Every man's hand is against that of his neighbor. What is for the interest of one man in civilism, is against the interests of the rest. Such is the state of

industry in all civilized nations in this year of 1884, common era. The agricultural society is not connected with the state government, the temperance society is severed from the schools, commerce is divorced from art, literature is separated from finance, for mental and physical wealth seem to have no connection, the scientists do not mingle with the laborers, and culture is not made a test of fitness for official positions.

No civilized statesmen seem wise enough to provide for the united action of these independent interests. Science proves and experience confirms their constant and important interdependence. The statesmen have left their connection wholly to chance or accident. The result of this chance work is that society is a vast aggregation of discordant and mutually interfering or destructive organizations.

The social structure thus comes to resemble the very low forms of animal life, like the polyps and jelly fishes, instead of higher forms. Let us consider the division of labor in these lower animals.

THE DIVISION OF LABOR and the changes of structure form the important law of specialization. And this affects the career of everything, whether it be the formation of a world, of an animal, or of a nation. The functions and actions which, in early stages of evolution are performed in a rude and general way by a few organs or parts, or else by many parts of a similar form, are gradually divided up among a greater and greater number of unlike



parts, each of these assuming some special portion of the work.

For example, take one of the polyps, a crinoid, as figured in the foregoing engraving. Here the entire function of digestion is performed by a simple sac or stomach. And this sac constitutes nearly the whole body. As we pass upward in the scale of life we find that in other animals there have been added to this primary sac various other organs, each doing a special part in the work of digestion. Thus in one case we have a liver added to separate bile; in another there is a pancreas to help digest the fat in the food, with intestinal or salivary glands to digest its starchy portions, and teeth to masticate. Of course, where all of these exist, the whole process of digestion and nutrition is carried on much more perfectly. Compare the figure of Human Nutrition with that of the crinoid and ameba.

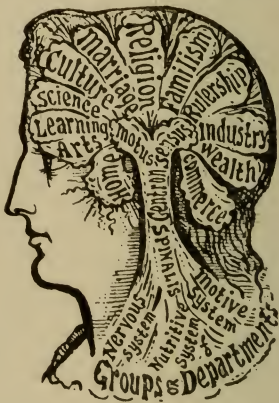
We must note that this division of labor, this greater complexity is not effected chiefly or simply by increasing the number of organs or parts. But it is accomplished by changing their form and arrangement. For example, one of the crinoids, the Briarean Pentacrinite, had thousands of muscles. But these muscles were all alike in shape. Each was a short, nearly straight slip of fiber. The only motions that they permitted were those of reaching out its tentacles, grasping its food, drawing this into its mouth and bending its body backward or forward in locomotion.

In contrast to the crinoid we find in man the small number of 232 muscles, duplicated on the right and left sides. Besides these we may count six

sphincter muscles, around the orifices. These muscles in man vary greatly in size, shape, construction and arrangement. This enables man to perform an exceedingly great variety of movements.

In harmony with this law we shall find in the true social organism a less number of officers than in the Christian and other civilizations. And the necessary parts in the new social order are united in one connected system. We have no right to separate things which nature has united. Many diverse faculties are united in the human brain. Religion and appetite, philanthropy and destruction,

reason and impulse, pride and modesty, and all the widely contrasted brain organs send fibers down to the common centers of action and unity, the motus and the sensus. They are all linked into chords of responsive movement by delicate and



mathematical laws. Each has its fixed locality and its harmonious relations to the rest. They cannot get away from each other if they would. For nature has enwalled them in one room with the triple bony plates of the cranium.

When these interior faculties have an outward expression in the departments and officers of the social organism, we can relate all parts of this organism

to each other by the same laws of harmony that united the inner world of equally complex mental powers. The faculties do not have new laws added to them so that they may act in the functions of society. They come forth panoplied with all the powers of state.

Our bodies, like our brains, are perfect systems of government, where each member does its work free from undue interference, but yet regulated by the work of every other organ, and ever obedient to its centers and the movement of the whole. Such a systemized whole should the people of a nation present. An organization that will meet all the wants of the people, and secure to each an opportunity to act according to the best of his ability.

Although civilism has represented the lower half of the faculties, yet it does not do even this in a complete and consistent way. For example, in Britain and the United States, the three departments of the government are legislative, executive and judicial. But if we divide the classes of wants in society into only three parts, these will be intellectual, social and industrial, for they arise directly from three great classes of faculties in man, the intellect, affection and volition. In the new plans, each of these three includes four of the departments.

In 1776 the founders of the American Republic thought that there should certainly be a law-making power (legislative), a power to see that the laws were carried into effect (executive), and a power to see that those who transgressed the laws should be judged and punished (judicial). All this seemed very reasonable to them. They had inherited such

a division of civil functions from England. It had developed slowly from the old Anglo-Saxon and the Roman times.

These men, these founders, talked many times of "the laws of nature." The best that they hoped was to found a system of government so framed that none of its provisions should run counter to what was in the nature of man. The constitution of man was so little understood in their day, that they could not imagine that it includes laws quite sufficient for civil forms and civil action.

When the Normans came to England in 1066, they could not crowd out of existence the old Saxon Council of the nation, the Wittengemot. The Norman duke made his followers into noblemen and a House of Lords was added to the old council. Then it became a Parliament, a place for talking, in which the House of Commons represented the old Saxon people. A double legislative body came about as a result of the two races of people. But in the new republic there was no division into different races; the Saxon, Norman and Celtic elements were everywhere mingled and not separate. Hence there was no good reason why the Congress should have two houses, the Senate and the House of Representatives. It was equally unwise and unnecessary to make the legislative body of each state double in the same way as the Congress. In regard to the latter it was said that the lower house represented the people, while the Senate represented the states as such. This was never true in practice nor even in theory. For the Senate voted upon all measures that affected the people, including quite local measures, such as river

and harbor improvements. It was useless and expensive machinery, in both the national and the state governments.

The six hundred “first gentlemen of Europe” who make up the British Parliament, constitute an unwieldy body, uncertain and heavy in its movements. And so of the American Congress. It has too many members. When a Congress meets at the opening of a session it is a mob. One member, the vice-president, has some known duties. The other members are without any special functions, any allotted duties. They must proceed, in the lower house, to put a head on themselves. They must elect a speaker or chairman. Then they choose fifty-seven committees, above and below, and give each of these its work to do. Then, after a week, or even two or three weeks of delay, they are ready for business.

In place of such cumbrous and indefinite machinery, the scientific method would have twelve departments and thirty-six subdivisions of these, with an officer at the head of each one. When these leaders are to be elected, each candidate knows definitely what duties he is to fill, and the people may judge of his qualifications for those special functions. All is certainty, order and economy.

The new method would immensely reduce the expenses of the national and state governments. Yet it covers twice as much ground; represents twice as many functions.

THE NORMAL METHOD of action in the brain is for each organ to start the impulse intended to supply the needs which belong to its proper functions.

For example, the organ of reason may require

facts from which to work out the solution of some question. But facts are supplied by memory, and reason would need to send an impulse to memory and procure them. A part of this impulse would pass through the motus or front center, and the other part directly to memory through the cells. The returning response might take both channels.

"SECONDING THE MOTION."



SECOND DEGREE.

In cases where the demand is urgent or strong, the impulse is supported by polar organs of the second degree. As shown in the engraving, we perceive and remember about a thing, as at *A*. Then we think or reason about it, as at *SR*. The response to this is to carry out the thought by acting, as at *St*. But action requires materials to work with, from the group of wealth, at *W*. A geometric law in the brain enables these faculties to respond and support each other in this definite way.

In public assemblies, to "second a motion" should be to carry out this law. A motion made in any given department naturally requires the support of a balancing or polar department, and the seconding of the motion should come from the latter.

As every part, and consequently every kind of wants, is represented by an officer or a subgroup, we do away with the necessity for endless committees, and motions to refer things to them. This definite classification of duties and functions greatly simplifies

and lessens the work of legislation. This certainly is an important thing where the expenses of civil government have mounted up to the hundreds of millions in money.

HEREDITY IN EVOLUTION. An organic being resembles its parents with such variations as are induced by the temporary activity of special organs or functions in them during its prenatal existence, and also such as are caused by the external influences which bear upon it after birth.

Impressions made upon the mind and body of the mother during the prenatal phase may be transmitted, in a greater or less degree, to those of the child. If the parents exercise their higher faculties during this period, the child will be superior in mental endowments. If they exercise the lower faculties chiefly, it will be inferior. The laws of heredity place within our control a powerful instrument for human exaltation. It is for the vital interests of society that all parents should have the favorable conditions which these laws demand. Both parents and society are responsible for the organization of every child. They can make it good or bad as they choose. Private effort alone can never secure and maintain these good conditions of heredity.

The central truths of evolution are those which belong to this subject of heredity. It is in the forms of living beings and not in those of mineral bodies that the great processes of growth and the steps of increasing complexity are displayed in the most striking manner. Evolution is not more important when it seeks to unravel the past than it is when it forecasts the future conditions and life of man.

All parts of the body and brain are so connected by nerves with the sex-system that the latter is able to focalize the forces from all the rest. Were this not so, their offspring would not have all the parts possessed by the parent. And if acquired characters were not transmitted, there could be no process of evolution through successive generations.

SUMMARY OF EVOLUTION.

1st. Evolution proceeds from simplicity to complexity in both the structure and function of the parts involved. In any case, the simplicity may have been the result of a devolution or passage from a previous state of complexity. There is a descending as well as an ascending phase of evolution.

2d. The advancement in complexity is effected by the specialization or division of labor among a greater number of parts or members, which become varied in structure or character for the new functions. And the functions are thus carried on more perfectly than before. The acting forces are both within the object evolved and in the external conditions, with mutual reactions.

3d. The specialization involves the increase of mutual dependence between the parts, so that finally the perfect action or life of each part is made possible only by that of the rest. The individuality of each part is thus closely related to the degree of mutual dependence.

4th. In geologic ages and in human history, the evolution of the brain and nervous system has advanced from the rule of parts at the base and back to the rule of parts at the top and front.

5th. The evolution of personal, national and race-life includes the successive phases of infancy, childhood, youth, maturity and senility; the advancement being from the base to the top of the brain, from the sensuous and animal faculties to the higher intellectual and spiritual regions.

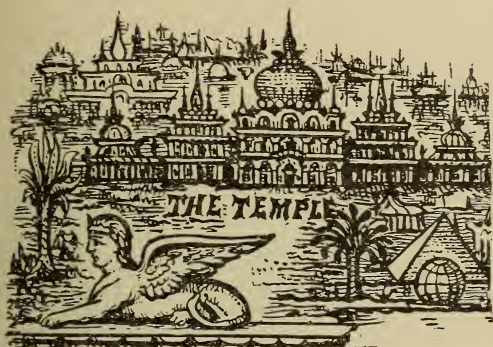
6th. As the nations of Europe and America, of China, India and Japan have now entered upon the great phase of maturity, they will apply the methods of science, instead of mere experience, to all the problems in the intellectual, social and industrial life and structures of society.

7th. The institutions must be in harmony with the nature and wants of man. But the collective wants of man in society arise from each of the twelve groups of mental faculties, and these must therefore be represented by as many departments and officers in the social organism,

Architecture and Homes

CHAPTER FOURTH.

ARCHITECTURE AND HOMES.



Art is that higher unfolding of nature which takes place through man. The stately temple or the powerful engine are as truly products of nature

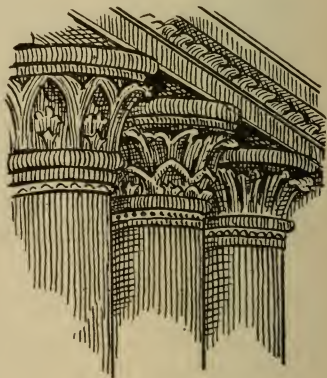
as the tree of the forest. The laws of art have their basis and their explanation in the laws of the mind. "Architecture is a material expression of the wants, the faculties and the sentiments of the age in which it is created." In these words Owen Jones expresses a fact which architects very well know. And from this truth we also know that a new social order and civilization requires a new style of architecture to be in harmony with its methods of life.

The three primary wants of man are food, clothing and shelter. The cave-men and the primitive dwellers in tents solved the problem of shelter in a rude way. The dwellings of worked stone and wood in the more advanced stages of society still retained features

that belonged both to the cave and the tent. Rude nature gave the early man many examples of stone blocks partly squared. To combine and improve these was to have a stone house or a temple. And the top of this long remained a flat roof, like the primitive rocks. The sloping top of the tent, a skin thrown over a pole or stake, taught men to make the slanting roof as a better rain-shelter. The Mongolians of our day are still fond of the curved roof that shows the sagging tent-top of its ancient model.

The arch was more difficult to construct and came much later. And later still was developed the rounded dome, a crown to the edifice.

There was an early development of the column in architecture, for these were copied almost direct from nature. In columns and capitals, in the Doric, Ionic, Corinthian and Egyptian orders, the ancients reached the perfection of symmetry and beauty.



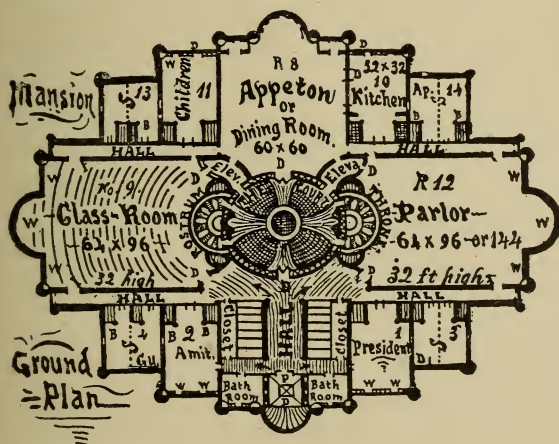
The ancient temple was but a house for the gods. And its ground-plan was essentially the same as in the houses for men. This plan has been made out in the ruins of ancient buried cities. When the Christian church was developed it took a fundamentally different plan from the dwelling house.

The architect in building deals with three things—the form, color and arrangement of the parts. He has

these three to deal with, no matter whether his materials of construction be wood, brick or stone. How shall these be combined to secure beauty, utility and economy in the worthy mansions of the new social order?

The brain itself, as well as the body, is governed by geometric laws of form. The brain is an ellipse having a major and a minor axis, with two focal points of action. Thus it has definite lines and curves for muscular movements, for brain currents, for thoughts and for feelings. Let us make our mansion or temple upon the same basic plan. Then it will be in harmony with the vital laws of man's nature.

The great rooms of the mansion or temple are placed on the major and minor axis. There is a



bi-lateral symmetry here, the same as in the brain and body.

The size may vary from 160 feet in length to 672 feet, with the

same arrangement and proportion in the rooms. But in the larger size, what is figured here as a single small room would be divided into two, three or four.

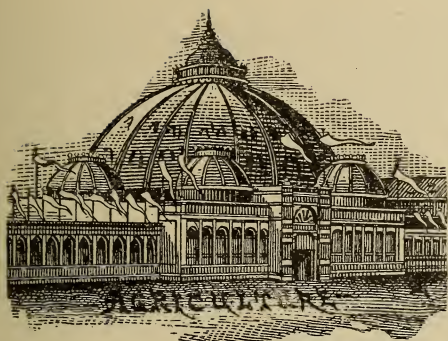
The central court is an ellipse, reaching from the

first floor up to the dome. The court is surrounded, in the large temples, with twenty-six columns. In the walls of the court on the first floor are six large panels with paintings showing the characteristic scenery, animals and plants, of Asia, Europe, Africa, Polynesia, North America and South America. By being central, the court is equally accessible from the rooms in all directions.

The largest entrance is at the south side, the Golden Portal. The front arch of this portal, with seven stones, represents the seven groups of science, culture, marriage, religion, familism, ambition and industry. These form an arch in each human brain. The key-stone of the arch is religion. The twelve departments are in the pavement of the portal. As you pass in from the portal on either side are the great stairways. At the court corners of the large rooms are four elevators for passengers.

The two focal points of the whole building are the throne in the parlor or reception room and the rostrum in the class or lecture room. The throne and rostrum correspond to the *sensus* and *motus* in the brain. The plan of the rostrum for the capitol buildings is given on page 76. It has twenty-four seats around it for the leaders.

The appeton, or dining room, is central on the north side, with doors from the court, the class room, the parlor and two outside doors on the north. At the center of the dining room is the oval table for the two central officers and their assistants. Around the outer part of the room are placed twelve other tables, for the twelve groups of members. Above the dining room, in the second story, is the large



play-room for the children, fitted up with numerous appliances and devices for their amusement, work-plays and instruction. Some of the children's bed rooms are in

this story and some in the first. The children also have a large festive hall for dances, plays and festivals, in the department of familism.

It will be seen from the engraved plan that in the corner spaces are grouped the lesser rooms for officers and members. These form three stories. There may be as many as one hundred and forty-four of these in the larger buildings.

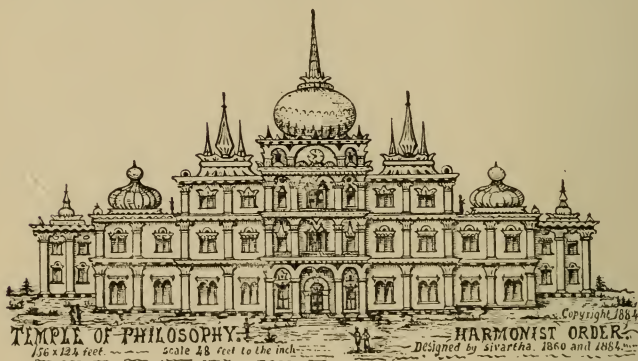
A front elevation of the great temple is given at the commencement of this chapter. From this view it will be seen that the parlor and class room are partly covered by a second story. This includes both large and small rooms.

A front view of a smaller building, 160x124 feet, is shown on the next page. This has thirty-six of the private rooms. Its parlor and class room will each of them seat 340 persons.

It must not be supposed that all the houses in a city will look alike. A very great variety may be made with the same fundamental plan. As in human beings, all are made on the same basic plan, but what an exceedingly great diversity in human shapes and faces!

The best material for building need not be discussed here. It may vary in different ages, with the progress of invention. For the walls, brick stands first in a sanitary point of view and also in durability. Next comes marble, and then wood. Brick is more porous than marble or granite, and therefore drier and better. Brick also admits of many tints of permanent color.

THE PERFECT VENTILATION of rooms is a necessary part of their sanitation. It can never be



accomplished through the windows. The air should be admitted through many apertures near the floor of the room, so as to be evenly distributed and not in large isolated currents. In the Social Palace at Guise, the air was brought to the buildings in long underground galleries. This warmed the air to sixty degrees in winter, and cooled it down to that point in summer. The experiment proved that this was not an expensive mode for warming and cooling the apartments.

The plans for workshops and factories resemble

those for dwellings, except that each corner space may have only one room, instead of a series.

The plans thus far sketched do not belong to the isolated home, for families of five or more. They are suited to the combined or harmonic household, with many members. We shall presently show that such a family and such a home can secure greater privacy and seclusion, with less interruption and interference than ever belonged to the isolated homes of civilism. Aside from this, the changed industrial condition of woman, already begun, will render such combined homes a necessity. And these homes will have none of the disagreeable features which have belonged to hotel and boarding house life.

The front aspect of the temple at the opening of this chapter shows the great dome at the center and supported on either side by clusters of spires. This central position of the highest point expresses the fact and gives the appearance of stability and unity. For stability and unity are central ideas in the very conception of a building to be occupied by living beings. The mansion, the factory and even the stable are gathering points for those who occupy them. How can they gather if it is not stable in position? And how can they be securely protected if it is not stable in structure? A dome, or the chief spire near one end, or far away from the center, means both physical and spiritual instability and lack of security. This form did well enough for churches in an age when men thought that the best destiny for man was to sojourn on this earth and get away to another world as soon as the sands of life could run out.

Among recent designs for large buildings, the United States Government Building, the Temple of Music, and the Hall of Liberal Arts, at the Buffalo Exposition, are excellent examples of symmetry and unity of form.

In the harmonic architecture of the future there will be ample scope for genius to display its inventive power. We have only given two drawings of buildings, because our limited space in this book scarcely allows for more than a brief statement of some basic principles.

The greatest changes required for the new order are in the basic plans, in the grouping of the rooms and in unity of arrangement. Excepting, of course, the wide difference from the present in the future color schemes.

The best part of architecture in the past has been in the many beautiful forms of columns, capitals, entablatures and moldings. A modified form of the Corinthian capital, with a stronger core, has more strength with not less beauty than the original form in Grecian temples. In the new order, Egyptian capitals are extensively used.

HOME WORK. The division of human labor into classes or separate trades and pursuits has lifted man from barbarism to civilization. But this division of labor affected the male sex chiefly. From the most primitive times woman remained little more than a housekeeper. Her advance depended upon the incidental influence of her connection with man.

In the growth of human industries, in the multiplication of trades and professions, man has taken by far the more prominent part. He has reached out in a

hundred directions while woman remained only mistress of the home. Man's greater muscular power was one cause that led to this uneven development. But woman has quite as many dominant faculties as man. Her brain is divided into just as many parts. The great laws of evolution then come in and tell us that sooner or later she must reach out in as many directions; she must seek and find as great a variety of employments. Nothing in life can be more certain than this law. Neither prejudice nor education can turn the law aside. The issue will leave woman quite as distinctly different from man as she is now. And in the new social order the home will have lost none of its sweet attractiveness. We shall see how this result is brought about by the method of grouping the members and by the employments allotted as proper to woman.

THE SEXES IN DUAL SPHERES. Man and woman are mental and physical complements of each other. Each sex is more developed in some directions than the other, but neither can claim superiority as a whole. They possess equal quantities of power, but it differs in kind.



The physical differences of sex must produce and sustain mental differences, because the brain and body are definitely related in action and sympathy. So long as woman fills the offices of maternity, so long must her nutritive organs predominate over the nervous and muscular. But these nutritive organs in the body are in direct and responsive sympathy with the affections

and emotions in the brain. Hence woman is more ruled by these and less by ideas and material influences.

In woman the whole physical system is more elastic, receptive and sensitive than in man. And man is more vigorous, hardy, positive, muscular, bold, cool and scientific. Woman offsets this by being more yielding, gentle, loving, ardent and intuitive.

Woman can reason as critically and acutely as man. But her first impulse is to look at a truth or a proposition through her intuition, that broad intellectual glance that sees outlines, colors and proportions without the details.

The mental faculties are all arranged in pairs. One in each pair is positive or masculine, the other is receptive or feminine. This gives us the pairs—form and color, number and language, memory and attention, reason and inspiration, invention and truth, amity and manners, faith and love, hope and luxury, devotion and fidelity, parenity and reverence, patriotism and aurosense, appetite and feeling, dignity and laudation, integrity and industry, liberty and stability, defense and economy, destruction and caution, aversion and locomotion.

An immense mass of careful observations and exact measurements were used by the author in discovering this pairing of the faculties. These observations were extended to all the races of men and to all the ages and stages of history. Do these present differences of the two sexes represent something which is permanent, or something which was incidental, and due only to unfavorable differences of opportunity and development? Science answers that they are

permanent and are part of a divine and harmonious arrangement. These natural differences of the two sexes adapt them to different spheres of intellectual, social and industrial activity. Their spheres, like their characters, are complements.

The offices and labors of society are all dual, as given in the model of society. Each has its masculine and its feminine side. Thus the department and labors of illustration are feminine complements to those of building; so is that of inspiration to that of law, and that of exchanges to that of machinery.

The offices and employments of harmonic society are assigned to the two sexes on the basis of this difference. The first officer in each pair is a man and the second is a woman. The twelve assistant officers may be arranged in pairs, masculine and feminine, as follows: Furnisher and musician, artisan and dramatist, courier and waiter, server and sanatist, ensign and watchman, tillman and keeper. The marshales works with the marshal, and is regarded as of equal rank, although the office is not elective or placed in the table.

The sexes are thus everywhere equal in rank; they go together in all the departments, and to each is assigned duties and employments in harmony with its natural adaptations. While woman thus takes an equal part in the government and conduct of society, she does not become less womanly, nor does man become less manly in development and character. Not more than one-twelfth of the women would be engaged in cooking and housekeeping; and these would make their work attractive by becoming artists in all of its details.

SOCIAL GROUPING. Every person has a natural right to associate with others who are attractive and congenial. This right must be gratified by arranging the members of each society into twelve departments, according to their characters, tastes and capacities.

Members in whose characters the reflective faculties predominate would unite to form the department of science; those who have the faculties of religion as leading elements of their characters would form the department of religion; and those in whom the ambitious faculties were strongest would form the department of rulership.

This process is followed in forming each one of the twelve departments and the various sub-groups which each of these may require. Each member will then be associated with others of similar ideas, tastes and capacities. A person who is fully and evenly developed in all his traits may pass and repass through all the groups in succession. They form exceedingly useful links of connection between the groups. Such persons would also be qualified to become central officers.

IN ORDER TO JOIN any group, a member must be accepted by all of its members, by vote or otherwise. If dissatisfied with any group or society a member may, without censure, leave it for another.

We may learn the character of any person by reading the indices of the face or hand; by the development of the brain; by psychometry, or by actual acquaintance with the facts of their lives. The pastor, the minister, and the scientist must understand all these methods of reading character.

In the schools, at the age of fifteen years, the

character, tastes and talents of each pupil have been well studied by the teachers, and the youth, whether boy or girl, is ready to choose a profession or work for life. When the choice is made, then there are five years of special training and study in all that belongs to the selected employment. When the youth is twenty, then the leaders of the religious department, the pastor and minister, must see to it that there is a place open for that youth in the settled work of the society, in its regular employments. And the youth can choose what group of workers he will enter, so that they shall be personally agreeable. This choice includes his own selection of food, of dress, of rooms and of location in the city. There never was in past times any such extended freedom as that in civilized countries.

It would be just as wise to leave every boy to get knowledge, and education, as best he could, without any system of schools to attend; that would be just as wise as it is to leave him to get, as best he may, some place in the employments of society. Industry is always applied knowledge, and it requires organization, system and certainty, quite as much as that which men have already recognized as needful in their systems of education. Chance work is no better in applying than in getting knowledge. But this discussion belongs more properly in our sixth chapter upon organized industry and collective ownership.

THE ROOMS ARE IN GROUPS that correspond in position, in furnishing and in color to the social groups of members who occupy them. No two rooms of the temple or mansion are alike in these respects. Draper, Moser, Denton and other scientists have

shown by many experiments that every object radiates forces which impress an image of itself upon surrounding objects. "If we lay a key upon a smooth metal plate for a short time, and then remove it, the image of the key may be evoked by heating the plate. And this may be done years after the contact." Whether conscious or not, the objects of the universe are thus continually recording their history in these marvelous pictures. A room becomes atmosphered and vitalized by the character of its occupants. The grouping of members, in the mansion, their daily life and employments, at length results in establishing definite currents of vital force from room to room around the mansion. It becomes, to an extent, like a living organism.

The laws of form, color and serial harmony become important elements in making a perfect dwelling. These laws must have a short consideration here.

BEAUTY OF THE FORM. The curves of the head, face and body seldom terminate abruptly, but gracefully blend with each other, like the organs at the surface of the brain. The number and perfect arrangement of these curves gives to the human form its wonderful beauty, so far surpassing that of all other physical objects that we cannot conceive of anything more beautiful. And our highest inspirations attribute the same form to beings in realms of existence more exalted than our own.

The Ellipse is the great curve upon which the brain is constructed. Each kind of a curve derives its properties from the fact that it has been produced by certain forces, acting with definite ratios and directions. A curve is an embodiment of forces.

The organs and signs of sex-love in the brain, the face and the body, form elliptical curves; the parental, filial and some of the intellectual, form parabolic; the ambitious organs form hyperbolic, and the religious and reasoning faculties form epicycloidal curves. It follows that these curves have spiritual or mental qualities and influences. Their normal use in architecture can be readily understood.

The most beautiful face and figure is one in which all of the faculties are the most fully and evenly developed. If any organs or signs of a curve are deficient in size, this will destroy the regularity and consequently the beauty of the curve. The most beautiful liv-



ing object is the one having the fullest and freest manifestation of life. For "Life is a principle of responsive unity," and the more complete the relation and harmony of its parts, the more perfect is the manifestation of life, in any living being.

Living creatures appear ugly and deformed when the free play of life seems obstructed in them. The line of beauty is that which presents the least obstruction to free movement, like the double parabola of the geometrician. A line that is crooked instead of curved, must have been produced by disturbed or interrupted forces. More force must be expended in turning at an abrupt angle than in passing around a gentle curve.

THE HUMAN HEAD, drawn in profile with an outlay of straight lines and angles, will give us a scale of twelve. The opening of the ear lies against

the centron, the pivot of action between the brain and the body. From this point we see that a line drawn to the base of the nose and another to the top of the nose will include an angle of thirty degrees, or one-

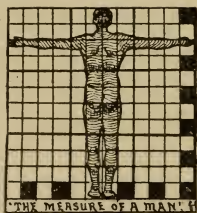
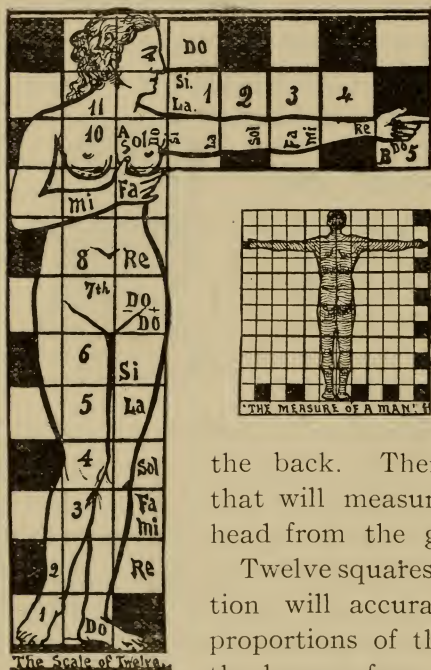
twelfth of a circle.

The mouth and chin form the same angle and so does the forehead. The groups of culture, religion and ruler-ship each form a twelfth at the top of the head. Industry, wealth and commerce each form an angle at

the back. There is no other scale that will measure the parts of the head from the great center.

Twelve squares drawn in each direction will accurately divide off the proportions of the various parts of the human form. This scale applies

to both the external and the internal parts. Thus the brain is a twelfth, the heart and lungs form another twelfth, and the pelvic organs another. The extended arms reach as far as the person is tall; "the height, length and breadth are equal," as was said of the New Jerusalem when speaking of this "Measure of a Man." This scale applies to every well-proportioned adult person, as well as to the great works of ancient and modern statuary. It was discovered



by William Page, a distinguished artist. The scale for the head was discovered by the author.

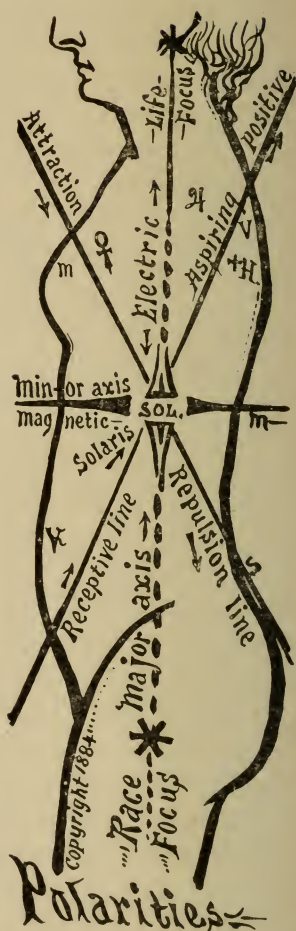
The number twelve is therefore the basis of construction in both the body and the brain. These squares form a series of trinities. The face includes three angles, there are three above, three behind and three below. The forearm has three squares; the rest of the arm has three, ending in the pectoris muscle at the breast-bone. The lower leg has a trinity, and the upper leg another.

The law of the trinity is a universal law, expressing, as it does, what are basic properties of both matter and spirit. A trinity may have a pivot and two wings. In every mathematical problem or example two things are given to find a third. Three dimensions, length, breadth and thickness, include all others.

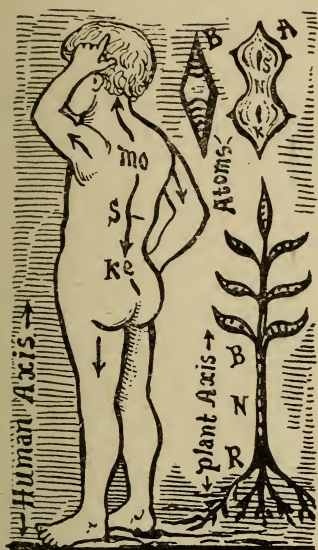
The harmonies of music are based upon purely mathematical relations. The sweet blending of voices in song and the noble symphony of instruments, are each under the strict physical laws of science. For in science we shall find graceful beauty and gentle sweetness no less than in the works of art.

The laws of music are exemplified in mental action, and these same laws of mental rhythm must govern the form, proportion and arrangement of parts in architecture. In general, any mental organ may exchange and coöperate with the third, the fifth or the eighth one, either directly above or below, or in front of itself. This responsive action corresponds to the chords in music. And music seems attractive and harmonious to us because its chords are like those which belong in our mental and physical structure.

A train of thought or feeling may be carried on awhile by one faculty, and then its third, fifth or eighth complement will assume the train of thought and carry it on forward, while the first rests or is engaged with other objects; or, what is more usual, it may take on the proper functions of the first, thus effecting a direct exchange. There are also frequent exchanges between the two organs which belong to the same pair. In the true social order, the members of a band make temporary exchanges of employment or position with those who are their thirds, fifths or octaves. For example, those in the groups of food culture may exchange with those who are in the group of luxuries; those in the groups of wealth may exchange with those in rulership. The different branches of labor are therefore related to each other by fixed and eternal laws of harmony.



THE LINES OF MOVEMENT and centers of action for the muscles are all arranged in harmony with these



scales of number and proportion. In this back view of the human axis, the center for the upper limbs is marked at *Mo*, and that for the lower limbs at *Ke*. Between these, and back of the stomach, is the node of vibration at *S*. In the side view of polar lines we see that the principal lines of movement cross each other at the stomach or solar plexus, *sto*.

In the harmonic order of architecture the rooms are grouped in trinities, and are therefore adapted to the trinities in the social grouping of members. A member may find his true place with certainty. There is no more good sense or good economy in letting each member grope about blindly to find by accident his work and place in the social scale of harmony, than there would be to let each member of a music choir or band guess as he went along what notes would fit in and chord with the other members, and so have no written music with scales and tunes. No one now would commit this folly in our civilization.

THE COLOR-HARMONIES which belong to architecture and costume must have a brief notice here. Every color is a definite kind of force. In chemical changes, in the growth of plants and animals,

and in mental and spiritual influence on man, in all these the effect of each color has been studied by able scientific men. In addition to this the history of art gives us the use, the meanings, of sacred and symbolic colors in religious and social life. Science agrees with art and with inspiration in regard to the meaning of colors. We see these meanings in the royal purple of rulership, in the yellow flames of religious fires, and in the green robes of regeneration and hope. In the arts of painting the yellow colors are classed as warm and soft, the reds are hot and positive, while the blues and grays are cool and sober.

In the radiant nerve-spheres as seen by sensitive subjects the various colors agree with those deduced in the other fields of science and art. Organic life itself is dependent upon the sunlight. The orange, yellow and green rays carry on the work of plant organization. If these colors were absent from the sunlight, then all plants would die. That would be followed by the death of all animals, for they would have no food. The subject of colors is therefore of vital importance.

The colors, both symbolic and practical, which belong to the twelve departments, are as follows, giving only one color for each: For the departments of arts, pearl gray or opalescent; for letters, sapphire blue; for science, azure or turquoise; for culture, emerald green; for marriage, orange; for religion, lemon yellow or cream; for familism, old gold or amber; for the home department, salmon; for rulership, crimson and purple; for industry, scarlet; for wealth, garnet red; and for commerce, maroon or Indian red.

Of course each color given here belongs to a group of tints. The members in each department have their proper color for costumes, but the different members of a group would not all wear the same shades of that color. If there were twelve members in the group of rulership, they would have twelve different shades of crimsons and purples. The lightest shades in this group are the pinks, lilacs and heliotropes.

White and brown are the feminine and masculine colors of unity. There is a special shade of brown for each of the twelve departments. Thus a reddish or seal-brown belongs to culture, and a greenish or olive brown to rulership.

Each type of character has its own proper shade of color, and this shade is "becoming" to that person and also is in harmony with his or her natural taste. In a large audience the twelve groups would display an attractive and charming series of colors. And in the social dances and marches, where the groups are arranged in the form of flowers and stars, all the movements bring together a wonderful and changing display of harmonic colors with a multitude of gradations.

Every color, let us repeat, has a definite and direct effect of its own upon our physical health as well as upon our mental or spiritual sense of beauty. The colors of rooms and costume are therefore a necessary part in a complete system of sanitation.

In the mansions and temples each room has its proper color, adapted to the character and work of its occupant. In borders and trimmings a large use is made of complementary colors. In dresses, each

person would have one dress that directly expressed the character, and three other dresses that would be complementary colors of the first and second degrees and of brown or gray. White is in harmony with all other colors. Black should be very little worn. The drabs and grays are suitable for many forms of labor.

IN THE EXTERNAL COLORS of mansions the extensive series of modified or tertiary colors are chiefly used. And neighboring buildings have complementary and serial colors. A city should be both beautiful and good. The houses, shops and factories are not massed and crowded in extensive blocks, like the suffocating cities of Christendom. But each one is surrounded by cultivated grounds, gardens, trees and shrubbery. The factories are within a few minutes' walk of the mansions where their workers reside. There is no need of "suburban homes" in order to have fresh air and decent surroundings. For in the true social order, every department of the city is a fit place of residence.

Nor does all this involve any needless expense of time and means. It is calculated by good business men that the bad plans and bad methods of civilized cities, at the time of this writing, cause a waste of one-half or three-fourths of all the labor in society. In the new order, four hours' labor a day will secure more than twelve hours did in the old order. There is wealth enough in Great Britain or in the United States, or in France, so that in the new order every family might live in a mansion of ample size and elegant appointments.

In civilized society you cannot choose your neighbors. You must associate or come in contact, more or

less, with those you do not like. But we avoid all that in Harmonism by our methods of grouping, by the arrangement of groups in a mansion and of departments in the city.

THE PRINCIPAL STREETS are marked in the city by barred lines. Twelve of these streets divide the departments, and twelve run through the middle of each one. Sixteen of the twenty-four streets run directly to the central ellipse, or square, so that the central buildings are equally accessible from all of the departments.

On the next page we have given an engraving of a single department to show the arrangement of its mansions, shops and store-houses; forty-eight of these are represented here. Of course the numbers would vary with the size of the city.

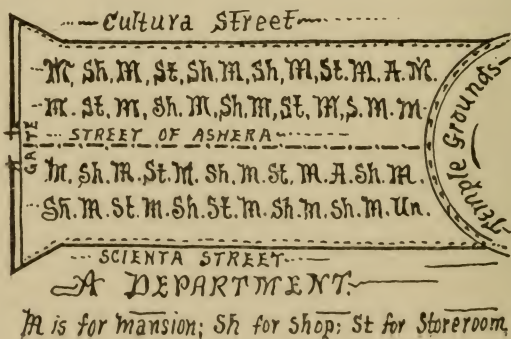
A LIMIT for the size of any city is just as proper and wise as it is for nature to set limits for the normal size of human beings. If men grew up all sorts of sizes, from six inches high to sixty feet, it would be extremely difficult to adjust houses and tools and other things to such a lot of variants. A city, like a man, may be unwieldy in size and thus lack unity of thought and efficiency of action. Two hundred and sixty thousand people are, perhaps, enough for the largest city, the metropolis of a nation.

A choice in the room, the home, and the associates is the natural right of every grown person, and, more than that, the home should be inalienable, so that no person could be deprived of his home, unless that person had committed a crime and become dangerous to society so that it was necessary to remove him to a place of security.

It may sometimes occur that a person may wish to relinquish a home and seek another. Certainly he should have a right to do this when it is voluntary. In the composite or harmonic home, the "home feeling" is quite as possible and quite as essential as it ever was in the isolated or single households of the past.

THE FARMER'S MANSION and buildings would be grouped together at the center of the farm, containing from 640 to 2,560 acres; the size depending upon the kind of products to be raised. The number of persons required on a given farm would also depend upon the kind of products, some of these requiring very much more labor than others.

In the ordinary farm mansion the one hundred and forty-four members would find among themselves enough variety of character and talent to prevent any of that sense of isolation and absence of chances for culture and amusements, which belonged to the farmer's life in past times.



The Culture of Man

CHAPTER FIFTH.

THE CULTURE OF MAN.



A TRUE EDUCATION must be a system of Instruction, of Culture and of Training. For the nature of man is three-fold—it is intellectual, social and industrial. We must reach the head, the

heart and the hand. We must impart knowledge by natural and attractive methods; we must cultivate each group of mental faculties daily, by studies, plays and labors, and we must give a practical training that shall fit the pupil to fill a productive place in

the living work of society. And we must base all these upon a scientific knowledge of man's mental and physical constitution.

The old Greek eometer told the king that there was no royal road to geometry. One might now

think from the civilized methods of teaching, that many modern instructors have taken a special delight in rendering all the roads of knowledge unroyal and disagreeable. We have taught the knowledge which is in books as though it were something quite different from that which belongs to things.

The black, dead letters of our books have no vitality. They do not reach the child's feelings, the quickening center of all his intellectual activity. Even the teachers have forgotten what the names and forms of the letters mean.

NATURAL METHODS. We must realize that it is just as natural for a child to acquire knowledge as it is to breathe. If we conform our methods to the natural laws, then education will become a vital growth and not an artificial process.

Our method must speak to all the senses of the child. These senses are the doors through which all the materials of his knowledge must come. To him this world is a concrete world. It is made up of things. All truths are embodied. They have an outward clothing of substance. Analysis may distinguish separate properties; we may consider the color of an orange without paying any attention to the fact that it is spherical. Only in this way can knowledge be abstract.

It is in this world of objects that the keen senses and active imagination of the child are perpetually delighted. It is to bring this objective world within the school-room that we invent the color-balls and blocks, the tablets and weaving-slats, the paints and patterns and leaves, for the younger pupils. It is for this that we organize the training shops for the older hands and brains.

This method has already been tried with much success in many schools, although not generally adopted. We know that it has been uniformly successful in the highest scientific classes of the universities. The students are required there to study by direct contact with the objects. The chemical student must actually combine chemical substances; the student of mineralogy must handle and fuse minerals; and one studying zoölogy must examine and dissect animals. The same method can be used with success in all the grades of study, from the kindergarten to the college. It vitalizes and fills each study with fresh interest.

THE GREATEST CHANGES which we propose are in the two divisions of systematic culture and physical training. But we must first give a few pages to the subject of natural methods, in order to make our general sketch of education fairly complete.

A few examples will show how these new methods work in practice. We will describe them here partly in the words of another, who is writing of the Quincy schools where these methods were adopted.

THE SCHOOL ROOM is made one of the most attractive rooms in the harmonic home. It is adorned with pictures, flowers, minerals, curiosities and all that can appeal to the opening senses of the young mind. In the aisles between the desks are carpets to lessen the noise. On these desks are tablets and lead pencils. On the blackboards are words written with colored crayons, in red and green and white. The teacher now says:

“Mattie’s class may copy the red words; Willie’s

class may write the green words, and Fannie's class may take the white words."

The children take their tablets and copy the colored words; they learn to write and to distinguish the colors at the same time.

Another class which does not know the alphabet is standing before a blackboard. "What do I hold in my hand," says the teacher. Every hand is raised. "What is it, Charlie?" "A cat." "Can you tell me a story about it?" Every hand is up again. "Well, Susie?" "I see a cat." "Very well, now look at this on the board." She writes the word "cat." "What is that?" Not a hand is raised, but every eye is studying the unfamiliar letters. The teacher sketches a cat on the board.

"Now, what does this stand for?" pointing to the word. Two hands signal. "Sophie?" "A cat." "Oh, no; Carrie?" "Cat." "Right. Now I will add our old friend," prefixing the adjective "a." "Now Sophie is right—a cat. Who can find another?" With this suggestive leader, the word cat is written on different parts of the board, but among other words, and the children eagerly search it out.

The teacher writes the sentence, "I see a cat." That puzzles the little heads at first. But one hand is raised, and another, and another. "Carrie?" "I have a cat." "No. Artie?" "I see a cat." The word "see" is wholly new to the class, but the context has suggested it to them and it becomes fixed in their minds by association. "Now you may copy this on your tablets. Good-bye."

The class return to their seats to write and rewrite these two new words. The pronoun and adjective

they had learned before and they have now fixed the looks of all four of the words in their minds. They have learned to substitute written words for pictures. They are not told anything; they find out by their own thinking. Each one is required to "tell a story;" he must form a complete sentence, however short it may be.

IN LEARNING TO COUNT, actual wooden blocks or other objects are used. Take a class of six young pupils who have learned to count as far as five. The teacher begins, "I have five blocks, two and two and one," separating them into those numbers. "Now I hold one more. How many have I now?" Several hands are raised. "Well, May?" "Seven," answers the confident May. "How many of you think that May is right? None. Well, Georgie, tell us about it." "I have five blocks and I add one and have six." "Six what?" "Six blocks."

"How many noses have we around the table?" "Well, Willie?" "Eight." "No, we will not count our visitor. Tell me something about it." "I see seven noses." "Now we'll all go to sleep." The little heads all bend down and the teacher removes two blocks. "Wake up and find something." Every eye is on the blocks. "Tell us about it, Jamie." There were six blocks and two have been taken away. "How many are left, May?" "There are four blocks left."

Thus the lesson proceeds with concrete numbers. The children SEE the numbers. They do not merely hear words, the objects are there before the words are. They have embodied each new-found idea in the words of their own. Though quickly acquired it is,

fixed in the memory. The class is now weary; a little change will rest them. The teacher leads in a merry song, and then all are ready for fresh work.

The whole school is now called up. Their lesson will combine grammar and arithmetic, and at the same time exercise their imaginative faculties. The teacher writes a number of simple sums on the blackboard. The pupils are to match and explain each one of these sums with a story. A dozen eager hands are up. "Well, Leona?" Leona rises and says, "I was walking in the lane and I found two butterflies and then I saw two more, and that made four butterflies." "Very well." The teacher puts the answer under the proper example and then calls another child. "I had two red apples and my brother gave me five yellow ones, and then I had seven." The whole school is interested. Each one is eager to tell a story and win one of the sums.

SUGGESTIVE WHISPERS are freely allowed. The little inventive brains soon capture the entire board with exactly fitting stories. Now the exercise is changed to work in subtraction and the answers are in stories as before. The children form their answers from their own range of experience, in the house, the field or the street. They are encouraged to name the properties of the objects which they use to make the answers. They do not merely say "apples" but "red apples" or "yellow apples."

Let us try a class in fractions. They deal with dividing objects. And the first thing must be to let them see the division take place. The class is seated around a table, and before each is a lump of clay. Each one pats his lump down to a square cake.

The cake is now divided into two equal parts and these are again divided and their size and weight compared. They see the meaning of wholes and halves and fourths, and they state these distinctions in words.

In the same way they study the addition of fractions. One child's cake is divided into eight parts, then four are taken away and half a cake is added from another cake. They see at once that putting together one-half and four-eighths make one whole thing. They have learned a real fact, not a string of words in a book. Now they are ready for a diagram. They draw four white bands on the blackboard, then they divide these by cross-lines in red and subdivide them by lines in green. Tracing the colors through each band, the pupil sees the exact relation of halves and fourths to the whole.

The modern method of writing down a fraction is deceptive and not ingenious. The child looks at $\frac{2}{3}$ and he thinks that each of these figures, in some way stands for a number; yet only the upper figure represents a number. The lower figure only tells what *kind* of a number it is. Just as when we write 2 lbs. The *lbs.* is not a number, it only tells what is the denomination of the number 2 in this case. It is pounds. You cannot multiply or divide or subtract pounds, but you can *reduce* pounds to ounces, another denomination. And so you can reduce the denominator of a fraction, but you cannot multiply or add or subtract it. Yet the text books of arithmetic tell the student to do this absurd and impossible thing. Fractions should be written as we do other denominate numbers.

But in the new system of arithmetic, where the tables are sufficient to express any quantity in whole numbers, very little use will be made of fractions: they will only occupy three pages of the text book.

A CLASS IN GEOGRAPHY is before us. They are to study Great Britain. Why choose one of their number as a scribe? They have already read its description in their text books. A table is before them with a pile of brown molding sand. They must first spell out the name of the country, and, as they proceed, all the important words of the lesson are spelled and written by the scribe on the blackboard. They are to study the surface, with its mountain range, its plains, lakes and rivers, and its indented seacost, by molding all these in the sand. Each pupil contributes some fact on these topics, and gives his factexpression by shaping the pile of sand.

The general form of Great Britain is first made in outline. Then this outline is modified by molding its edges into capes and bays, and its interior into mountains and plains.

If a mistake is made, either in describing any part, or in molding its form, the class take a vote to see if a majority can correct the fault. In one lesson they are able to construct a complete map in relief on the table. They have touched almost every topic in geography. Where sand would not serve their purpose, they have helped themselves out with modeling clay.

Once they would have been merely taught that "an island is a portion of land surrounded by water." But these children take a lump of clay and are taught to make a clay island on

the table. This table has a slightly raised rim, so that they can actually cover it and surround their island with water. The table itself may be painted blue, to represent water, and then the land is appropriately shown by the brown sand.



WATCH OR CLOCK DIAL FACE.

A NEW ARITHMETIC will be one of the necessary things in a social order where both economy and common sense have a voice in deciding affairs.

The primitive races of men counted on their fingers and in that way the decimal or system of tens came to be the basis

of arithmetic. But the best mathematicians of the present time assert that ten is not at all the best number to count by as a basis. It can only be divided once without fractions. A square is an essential basis of all surface measure. But you cannot divide ten by four. Again, the trinity is everywhere in mathematics. But three is not a factor in ten.

We adopt twelve as a radix, because it is a perfect number. It has twice as many factors as ten. It is divisible by two, by three, by four and by six. It admits of the natural sub-divisions by halves, thirds, quarters and squares. And its adoption will do away with the awkward mass of fractions which now take about one-fourth of the text book.

The scale requires twelve figures or digits, and

each move of a figure to the left will increase its value twelve times. Three figures will then stand for twelve times twelve (144) instead of ten times ten (100).

The method of increasing the value from *right* to *left* seemed natural enough to the Arabs and the Hindoos, for that was the direction in which they wrote, beginning the line on the right side of the page and going toward the left. But it seems awkward and unnatural to the European or the American boy, for we write from the left side toward the right. It seems to the boy that the numbers should increase in value in the same direction as he reads words.

THE SCALE OF WEIGHTS AND MEASURES should certainly have the same law of increase as the system of numbers. Following is a tentative table. The linear unit is convertible into those of square and cubic measure, and it enters into those of weight. On comparing the six divisions of the table we see that only the initial letter is changed in passing from one to the other. This renders them easy to learn and remember. The words are entirely new, in order to secure brevity and unity of form. Nature gives us no object of invariable length for a unit. We adopt the British inch, or one-twelfth of it, as our unit of length. That can always be proved by the pendulum. The French meter was copied from an inaccessible unit, which may never be proved or known.

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LINEAR MEASURE.

1-12 of an inch.....	I	säd
12 säds or 1 inch.....	I	söd
12 seds, 1 ft.....	I	söd
12 sids.....	I	söd
12 söds, 144 ft.....	I	sed
12 seds.....	I	säd
12 säds, $3\frac{8}{8}$ miles.....	I	söd
six inches.....	I	södä
six feet.....	I	södä

CUBIC MEASURE.

1-12 cubic inch.....	I	käd
12 kads, 1 cubic inch..	I	köd
12 keds.....	I	köd
12 kids, 1 cubic foot..	I	köd
12 köds, 144 cubic ft..	I	ked
12 keds, $2\frac{1}{3}$ cub. yds..	I	käd
12 kacs, 256 cub. yds..	I	kyd
six cubic inches.....	I	ködä
six cubic feet.....	I	kedö

UNITS OF TIME.

12 todas.....	I	töd
12 tods, 5 minutes.....	I	täd
12 tads, one hour.....	I	ted
12 teds, 1 day or night..	I	tid
24 hours, or teds.....	I	töd
30 tods and 5 teds.....	I	täd
12 tads and 5 tods.....	I	tyd

SURFACE OR SQUARE.

1-12 inch square.....	I	fäd
12 säds square.....	I	föd
12 seds square.....	I	föd
12 sids square.....	I	föd
12 söds square.....	I	fed
12 seds square.....	I	fäd
12 säds square.....	I	föd
six inches square.....	I	fedä
six feet square.....	I	födä

UNITS OF WEIGHT.

1-12 cubic inch water...I	bäd
12 bāds, 1 cubic inch...I	böd
12 bēdsI	bīd
12 bīds.....I	böd
12 böds.....I	bed
12 bed.....I	bäd
12 bads.....I	bīd

UNITS OF WORK.

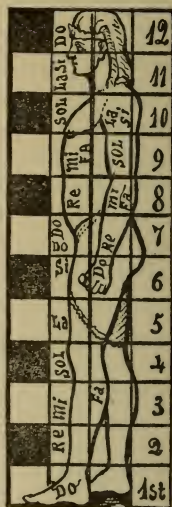
5 min. human labor..	I	stöd
12 stods, 1 hour.....	I	stad
Horse or mech. power..	I	sted
Heat, 1 degree F.....	I	stid
Electr.....	I	stöd
photome.....	I	städ
Velocity 864 ft. p. min.	I	styd

THE PRACTICAL WORKING of a twelve-fold scale of measures and weights shows great advantages over a scale with ten for a basis, like the metric system. The properties of numbers are fixed in the nature of things. We cannot change these properties. The best that we can do is to make our system of numbers and our scale of measures as nearly as possible like these properties in nature.

Nature has used twelve as a basis of construction in both the head and the body of man. And this twelve she divides into a series of threes and fours. Even in the hand, where five appears, yet one of these, the thumb, is of entirely different rank from the rest. If the thumb were ranged as one of a row with the fingers, then the hand would have lost all its power and value as an instrument of skill. The five branches of the hand require a sixth part, the palm, as their constant pivot of action.

In all the objects of nature and in the works of man, the constituent factors of twelve appear seven times as often as the factors of ten. These are conclusive proofs of the superior value of twelve as the scale-basis of arithmetic. Of course, in adopting the series of twelves, we would require a new set of characters or digits to express the numbers. The author proposes to take the twelve consonant characters of the new alphabet for these figures.

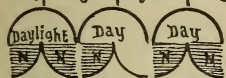
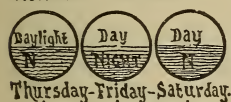
Thirty-five years since, the present writer devised



a system of arithmetic with twelve as its number basis. The subject is of so much practical importance, arithmetic must always have so prominent a part in education, that he has thought it best to give a little space to the subject here. The tables of weights and measures here given can be learned five times as quickly as those of the metric or of the still older systems. And all the practical operations of arithmetic would be shortened.

When a new universal language is adopted, the names applied to the series of numbers in counting will be both simple and regular, so that learning to count will be much easier than with the present method.

-NORMAL DIVISION-



Unnatural Division.

MEASURES OF TIME already have twelve as a prominent factor. But in counting the hours of the day on dials of clocks and watches, the European nations adopted a method at once unnatural, foolish and wasteful. They began counting the hours of

each day at midnight.

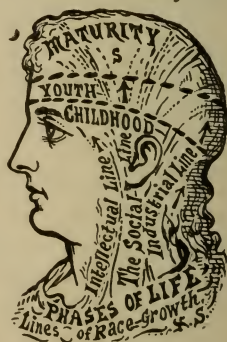
The revolution of the earth on its axis results in twelve hours of daylight and twelve hours of night-shadow, as shown in the upper figure. This is the natural or normal division of a complete diurnal period. But the common and unnatural method takes the shadow period, divides it into two halves, and gives one half to one day and one half to another day! This is shown in the lower figure. Here we see that Thursday consists of one period of light and two half periods of darkness. Surely an ill-balanced brain conceived such a mode of division.

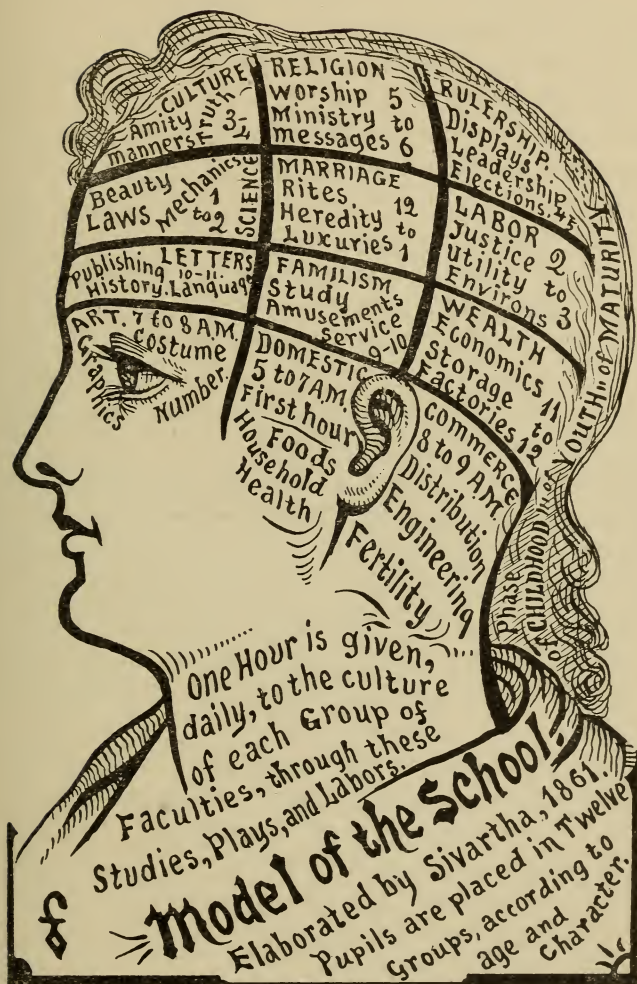
On page 129 is given a watch dial with the normal division and mode of counting. Here we begin counting at what has been called six o'clock in the morning, or sunrise at the vernal equinox. Here is where the astronomers begin to count for the whole year. Starting from this point the hour hand describes the upper half of the dial during the day-time and the lower half during the night-time. It follows the apparent course of the sun for the twenty-four hours. At noon it points upward, at midnight it points downward. At noon is six o'clock; we have been up at work six hours. The numbering corresponds to the practical work of life. The numbers from twelve to twenty-four belong to the night-time. A twenty-four hour dial does away with the awkward necessity of writing A. M. or P. M. after any hour, in order to know whether it is an hour of the day or of the night time.

The dial is divided into periods of six hours by dark-shaded points, and periods of three hours by half-shaded ones. It thus becomes easy to tell the hour by the mere position of the hand, without reading the figures. It is more legible than the older form of dials.

SYSTEMATIC CULTURE is the most vital and central part of education. This, too, has been the most neglected or overlooked in the schools of the past. The school should organize the intellectual, the social and the industrial life of the child.

We have described the way to make knowledge





attractive. We have now to learn how it may be made the high and successful instrument for the integral culture of man.

The object of the school is to fit the child to become a valuable member of society. How much of this work shall the school undertake to accomplish, and how much should be left to the family and other influences? The answer is found in certain basic laws of man's nature. We look into the marvelous brain of man and we see that the radiant lines of all its organs are united in two common centers of action. The intellect, the feelings and the will were all made to work together. If we attempt to cultivate a part of these and leave the rest untouched, we shall violate a fundamental law of the mind.

The schools of civilism cultivate the intellect to a certain extent, reaching about three groups of faculties out of the whole twelve. People wonder why the school and college education does not make men moral. These do not cultivate the moral faculties. They do not make men successful and efficient because they do not train the faculties of the will. We reap what we sow.

ONE HOUR EACH DAY is given to the direct culture of each group of faculties, taking these up in a natural order of response and succession. We regulate the entire life of the child. His plays are turned into instructive means of mental training. The whole school is formed into twelve groups, and each group has an elected leader who helps to direct its studies and plays. This is the plan in all the grades. If the school had only six hours of time daily, then only half an hour would be allotted to each group.

In all this we are guided by a great natural law. For the young of all animals, man included, attempt to do in sport and play just the kind of things which they are going to do as the serious business of life when they reach adult years. The young kitten chases a ball, watches it and springs upon it as though it were a mouse. The incipient mouser is there, struggling for utterance and discipline. The lamb does nothing of the kind, but he skips and wanders about, betraying and preparing for the ultimate grazing occupations of his kindred. The little girl plays at keeping house with a doll; the boy must have his horse and wagon.

Now we can easily take these instinctive tendencies and organize the plays of the child so that they shall be important and successful means of teaching. And, after the fifth or seventh year, they may become more or less productive to society. It does not satisfy the the child that all of his plays should be abortive and none of them real. Many light industries can be so organized that they will be in every way attractive to the unfolding mind and the developing physical system. But no employment and no study must continue long at a time. Short lessons are best. Frequent change of thought and action is the rule for rapid and normal growth in childhood.

THE ENGRAVED MODEL gives one arrangement for the special hours of culture for each group in figures. Three studies for each are indicated. In the table of studies, one hundred and forty-four divisions of these are given. The studies are classified with reference to their distinctive influence on the faculties.

PLAN OF STUDIES.

GROUP OF HOME, 5 to 7 o'clock. ART OF DRESSING—Bathing, toilet and costume. ART OF EATING—Flavors, odors and digestion. HOUSE AND FIELD—House-care, messages and field culture.

ART GROUP, 7 to 8 o'clock. MATHEMATICS—Geometry, arithmetic and measuring. GRAPHICS—Drawing, painting and penmanship. OBJECT LESSONS—Geography, botany and zoology.

COMMERCE GROUP, 8 to 9 o'clock. ENGINEERING—Civil, mechanical and locomotive. FERTILITY—Textile, culture, fertilizers and stock-raising. COMMERCE—Distribution, traveling and transportation.

FAMILISM, 9 to 10 o'clock. LEARNING—Obedience, guidance and study. AMUSEMENTS—Plays, festivals and work. SERVICE—Waiting, altruism and patriotism.

LETTERS, 10 to 11 o'clock. HISTORY—Civilization, biography and chronology. LANGUAGE—Grammar, speaking, and music. PUBLICATION—Books, newspapers and correspondence.

WEALTH, 11 to 12 o'clock. FACTORIES—Order in work tools, and machinery, fictiles and textiles. ECONOMICS—Expenses, ownership and exchanges. STORAGE—Providence, warehouses, and harvesting.

MARRIAGE, 12 to 1 o'clock. DUALISM—Sex structure, floration and rites. HERIDITY—Transmission, permanence and variation. LUXURIES—Recreation, caressing and pleasures.

SCIENCE, 1 to 2 o'clock. LAWS—Logic, mentology and rules. BEAUTY—Esthetics, symbolism and adornment. SCIENCE—Mechanics, cosmology and dynamics.

LABOR, 2 to 3 o'clock. JUSTICE—Rights, duties and penalties. UTILITY—Labor, groups, industrial plays and trades. ENVIRONS—Climate, forestry and horticulture.

CULTURE, 3 to 4 o'clock. HOSPITALITY—Entertainment, conversation and friendship. REFORM—Discoveries, teaching and adoption. MANNERS—Mimetics, morality and elocution.

RULERSHIP, 4 to 5 o'clock. LEADERSHIP—Authority, training and ranks. ELECTIONS—Voting, grouping and transferring. DISPLAYS—Standards, exhibitions and processions.

RELIGION, 5 to 6 o'clock. WORSHIP—Ceremonies, spiritually and belief. UNITY—Philanthropy, interchanges and discipline. ENTERPRISES—Reclamation, improvements and undertakings.

Commencing at five or six o'clock in the morning, we take up the sensitive or home group. We spend the hour in teaching and showing the pupils the art of bathing, toilet and dressing, with effects of different kinds of clothing in its material, colors and forms. Second, we teach them the art of eating, including the subjects of odors, flavors and digestion. And third, we instruct them in house cares, cooking and table serving. All these studies tend directly to stimulate and develop the domestic or home group of faculties.

The next hour, from seven to eight A. M., the perceptive or art group of faculties is the object of culture. Here we use geometry, arithmetic and measuring; we teach the elements of drawing, painting and penmanship, and we give object lessons in geography, botany and geology. These studies tend to develop the perceptive faculties.

In this way we proceed with all the twelve groups, giving an hour to each one, and taking them up in the responsive order of their mental action. That is, each group is to be followed by that group which balances or responds to it. We have spoken of these responses in describing the model city.

As far as possible each faculty is cultivated through its own proper objects of action and not simply through verbal instruction. Thus the friendship of a child is cultivated by its doing friendly deeds; its integrity by showing it how to treat its fellows justly, and its faculty of construction by teaching it to make articles of use or play.

A child learns naturally by seeing others do things, as well as by the trial of its own powers. It must

form its abstract ideas by seeing them embodied in concrete objects. During the first ten years of the child's life the chief instruments used in teaching are object lessons, conversations and industrial plays. Yet it is best for the average child to learn the alphabet soon after it has learned to talk fairly well. The table of studies gives a sufficient guide for subdividing the many topics required in the detailed work of the school room. Each text-book must contain a more extended analysis of its special subjects.

This perfect plan gives four hours a day for intellectual culture, four for social and four for industrial culture. The four groups of ambition, industry, wealth and commerce exert their influence directly on the muscular system, and their culture therefore belongs to the physical side of education. Yet more or less physical labor is used as a means of teaching in the other groups. When night comes, we are certain that every faculty in every one of the pupils has been brought under systematic training. We have not proceeded upon guess work, nor relied upon good fortune. We have instituted a direct relation and correspondence between each part of the school and the plan of the human mind. In no other way can we secure integral culture with certainty.

The kindergartens, the Quincy schools and many others have illustrated some of the methods by which the different branches of study may be made extremely interesting and attractive to the minds of children and youths. But these schools did not arrange the studies so that they would accomplish the central work of systematic culture for all of the faculties.

It is not "moral education" or "technical education" or "intellectual education" that we need. None of these partial remedies will answer the pressing demands of this age. It is integral education only that can save civilization from social paralysis, from intellectual dry-rot and from industrial convulsions. When all the twelve fruits of the tree of life shall have a true culture, then indeed will their rich flavor bear the strength of "healing to the nations."

THE STUDIES IN OUR TABLE have been arranged with reference to their direct bearing on the practical departments of actual life. Art, letters, science, culture, religion, marriage, familism, home, commerce, wealth, industry and government—all these are the concrete realities of life; they touch the questions of our daily happiness; they sum up the vital interests of the individual and of society.

The common divisions of knowledge do not respond very closely with their actual use in the work of life. Yet they are of value because they show certain and extensive relations which exist among the laws of nature.

DIVISIONS OF SCIENCE.

MATHEMATICS:	BIOLOGY:	PHYSICS:
Geometry,	Mentology,	Cosmology,
Spacics,	Physiology,	Chemistry,
Arithmetic.	Botany.	Dynamics.

SUBDIVISION OF THE ABOVE.

MENTOLOGY:	COSMOLOGY:
Psychology,	Geography,
Sociology,	Geology,
Economics.	Astronomy.

The arrangements of text-books with us is a matter of more importance than it was in the old methods, although we no longer depend upon our text-books exclusively. Extended tables of analysis have been made as a basis for the Vesona or universal language. These show a minute classification of every branch of human knowledge, and they are used as a guide in the new system of schools.

A UNIVERSAL LANGUAGE. The civilized man is more natural than the primitive man. For his nature is now more unfolded, better developed. It is true that the primitive man followed a natural impulse in choosing vocal sounds to express his thoughts and feelings, and thus invented language. But with the vast knowledge of the present day to guide us, a new language can be formed upon both a natural and a philosophical basis. Great linguists assure us that "Such a language might be far more perfect, more regular and more easy to learn than any of the spoken languages of man." It could truly represent the entire growth of past ages, in art, in science and in social life.

The Vesona is a language based, first, upon the natural meanings of the vocal sounds; second, upon the natural laws of thought and expression, and third, upon a scientific classification of every branch of human knowledge, so that the language may reflect the same order, simplicity and unity that prevail everywhere in nature.

Human language is an art with three great divisions, grammar, music and gesture. Two of these divisions, that is music and gesture, have already been developed to a great extent in harmony with natural laws. In

the Vesona the author has attempted to attain this same result in the grammar and the vocabulary of language, for these form the most important part in the great art of expression.

It is estimated that the Vesona can be learned in one-tenth part of the time that it now takes to learn any of the European languages. In education and in the cost of books and newspapers, its adoption will save hundreds of millions annually in either Great Britain or the United States.

When all the nations have the same political and social constitution, the jealousies and quarrels which so long divided them will come to an end. The common knowledge and common interests of all nations will demand a universal language as its symbol and instrument of expression.

If we take an existing language, like English, French or German, and modify its grammar and vocabulary until these are simple and regular, then we should find that these changes would make it more difficult to learn than a new language would be. The mixture of old and new forms would be a source of perpetual confusion to persons who had already been familiar with the language in its older form. This is fully proved by the several attempts which have already been made to modify the English in this way. The only practical way was to make a language entirely new.

THE PHASES OF DEVELOPMENT from the years of infancy upward must guide in the gradation of studies and classes. In childhood the lower faculties are dominantly active; they are ruled by sensations, perceptions and impulses. As life advances

successively, higher organs come into prominent activity. In the home or common school the children under ten years of age form three groups or classes; those of art, home and commerce. The youths from ten to thirteen form the groups of letters, familism and wealth. Those from thirteen to twenty form the groups of science, culture, marriage, ambition and industry.

As some children develop much faster than others of the same age, this limit of years must be varied somewhat to suit the different cases. The children are grouped as far as possible according to their characters. Those with the ambitious faculties dominant are placed in the group of rulership; those with large reasoning organs form the group of science, and so of the rest.

The gradation of studies is not a difficult matter, yet it is a thing of some importance. There are truths which belong to the higher faculties which are yet so simple that a child of five or seven can understand them without difficulty. There are other truths which make a vivid impression through their natural symbols and ceremonies. It is chiefly through these that the higher faculties of the child must at first be cultivated. We must remember that analogies belong with the fixed laws of nature, and we have no more right to violate the figures of speech than we have to misuse the figures of arithmetic. The symbols of religion may impress a child at three years. At seven he may form some idea of his relations to the human family by those which he bears to his brothers, sisters and parents. The community itself is only an extension of the family, as the history of our race

abundantly teaches. The laws of sex would be understood first from the study of flowers and fruits.

ENTERING MANHOOD. At the age of fifteen years the character and tastes of the youth have been well studied by his teachers; he has learned the use of various tools in the workshop or on the farm, and hence he is ready to choose his occupation for life. So far the studies have been similar for all the pupils. They have included facts and principles, such as all classes of persons will find useful and necessary as they pass through life.

There are truths in chemistry which are of value to us, no matter in what employment we may be engaged. The laws of health must be understood by us all or we shall be constantly liable to fall a prey to disease. Each one must take care of his own body. The laws of dynamics enter into almost every pursuit of civilization. There are many tools which every child should learn to use. The laws of society require a constant obedience from its members, hence these laws must be learned.

A SERIES OF TEXT-BOOKS could cover these essential parts of universal knowledge. They would not be so elaborate but that they might be mastered by every pupil in the course of study and the amount of time allotted in the common school. These text-books would include separate treatises on geometry, spacies, arithmetic, chemistry, cosmology, dynamics, mental science, physiology, botany, language, æsthetics and handcraft. These books should all be planned with reference to each other. The separate treatises might be written out by authors who were skilled in each branch,

The youth now makes a choice of some trade or employment, and taking up the special and elaborate studies which belong to that, he follows these until his graduation at twenty-one. During these years he is under the direct practical instruction of teachers who are masters or officers in his chosen employment. It will be observed that this system applies and is alike adapted to both sexes.

HIGHER SCHOOLS. The college and the university have the same plan as here sketched, only it is upon an enlarged scale. Every one of the twelve groups has a male and a female teacher, and over the whole is a president and a presidess.

The special colleges, training students for only one profession, would only require a faculty of thirteen officers.

CULTURE IN MATURITY is provided for in all the bands by regular courses of lectures and discussions in the department of culture. These cover the ground of art, science and philosophy, with all the new discoveries made from time to time. Thus our education becomes perpetual.

UNITY OF TRUTH. Every truth, every law, bears a fixed relation to the constitution of man. Therefore when it is once fully understood, it must appear essentially the same to all minds. It is the

work of science to take the phenomena of life, whether these belong to our physical or our spiritual experience, and by classifying, comparing and testing the phenomena, to discover the natural laws under which they were produced. Then we can understand the facts and also see their bearing upon the conditions of happiness.

In order to be scientific, the proofs must always be of such a character that all can understand them alike. They can thus become the common basis for unity of social action. We must not impose any doctrine or belief upon any person, and no doctrine or belief which is not susceptible to scientific proof must ever be made a part of the laws or constitution of society.

ORDINARY KNOWLEDGE expresses in a single formula a particular truth respecting a particular phenomenon.

SCIENCE expresses in a single formula a general truth respecting an entire order of phenomena.

PHILOSOPHY expresses in a single formula a universal truth respecting all phenomena.

ART CONSISTS of rules by which work is to be done. Skill is the mental and physical qualification required for the use of these rules.

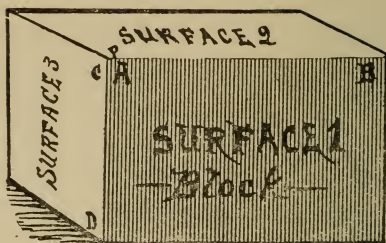
All science is practical knowledge, for it is based upon an exact acquaintance with the objects of nature. It differs from other knowledge in possessing system, clearness and certainty, in place of disorder, obscurity and uncertainty.

If we are to accept philosophy as the highest summary of truth, then it is important that its basis be carefully and honestly laid. And because philosophers have done careless and bad work at the very foundations, we must here consider for a moment the fundamental concepts of space, time and the "infinite." The real truth about these is clear and simple when rightly stated.

BASIC PROPERTIES. Every object has form, space and parts. We express its space by saying it has length, breadth and thickness. This block *has*

the space between its six limits or sides, just as it *has* a square form.

A surface is a limit of a solid or a body. A line is a limit of a surface, as the line AB , which is one limit of



the *Surface 1*. A point is a limit of a line, or where lines meet, as at P , where the lines CD and AB meet.

The *1st* and the *2d* surfaces meet on the line AB . A limit both unites and separates. The last limit of one object is always the first limit of the next one. We cannot measure any space without measuring an object, nor can we conceive of space as existing without a limit. In passing from object to object, in any direction, we perceive that they are CONTINUOUS or adjacent, and this is a positive property or fact. The negative word *infinite* is exactly the opposite of the truth in the matter. The universe does not have just one limit any more than it has just one color or just one shape in it. If we say it is "limitless," then we must also say that it is "formless" and "colorless."

TIME OR DURATION is the central element in all motions. Swing your hand in a circle. The motion has form, for it is circular. It has space, say two feet across. But there is another element, the motion has duration or time. Without this central element we would not know that a motion had been made.

We can only measure time by measuring a movement. We measure the year by movements of the

earth; the hours we measure by moving wheels in clocks and watches. Time is the same kind of a thing whether there is little or much of it, and so is space. To talk about "incomprehensible space or time" is just as absurd as it would be to talk of an "incomprehensible circle or square!" Time cannot cease unless all motions cease.

PHYSICAL CULTURE. A perfect state of health implies three things—beauty, happiness and strength. In a perfect man or woman the soul and the body respond to each other like the higher and lower octaves in a musical instrument.

Each organ of the brain can polarize and move such muscles of the body as have the same line of direction as its own fibers, and hence the mental faculty must be cultivated, must be brought into action at the same time as the muscle, if we would secure normal culture, and the movements must succeed each other according to the responsive law of thirds, fifths and octaves. This law of musical chords is embodied in the structure and proportion of the parts in both body and brain. These are basic truths of physical and mental culture.

In the full-page side view of the muscles, the lines of direction are given for the larger muscles of the trunk, and on each part of the muscle is placed the name of the brain faculty that moves that part by having the same direction. In each part of this chart we must compare it with those of the brain. The names of the muscles are in CAPITALS.

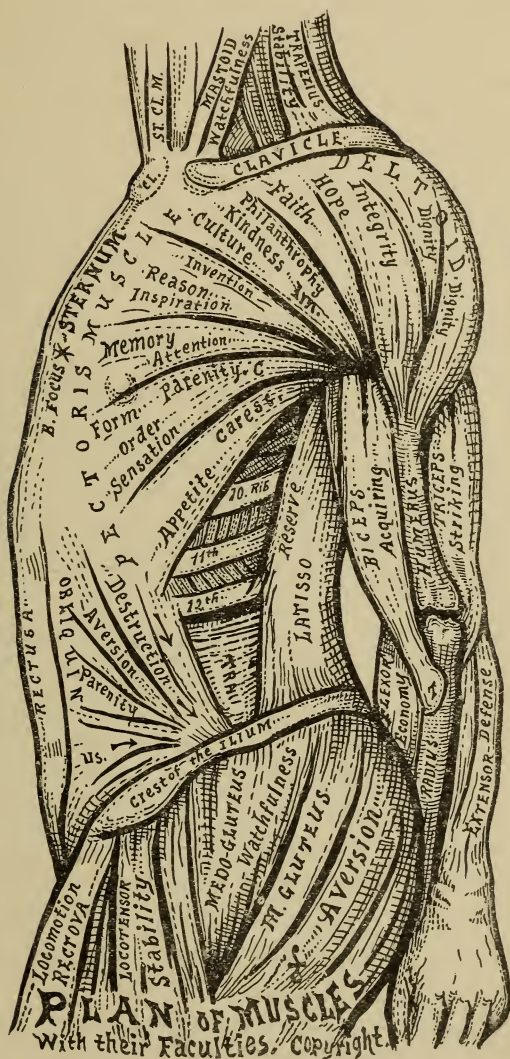
The great arm movements come from the PECTORIS muscle on the front of the chest and a corresponding one on the back called the TRAPEZIUS.

This one is attached along the spine from the base of the skull to below the middle of the back. There is a wide difference of direction for the fibers in the various parts of each muscle. At the lower part of the PECTORIS is a bundle of fibers that lies in the same line as the brain organ of appetite. This part of the muscle is used to reach down and get our food when eating. In reaching forward and down, to feel of things and to place things in order, we use the fibers marked form, order and sensation. The gestures of memory and attention are made by the bundle marked by these words. Above this bundle are those of reason, culture and philanthropy.

In stooping down and helping a person to get up, we use the bundle marked kindness. The organ of faith gives a still higher gesture. That of hope is almost vertical, and that of integrity is quite so.

The INTERNAL OBLIQUE muscle acts down and back in the line of destruction. This muscle assists





SIDE VIEW OF MUSCLES.

in expelling the worn out and offensive air from the lungs. The LOCOTENSOR (*Ten. Vag. Femoris*) has the mental line of stability and is one of the muscles required for standing.

On the shoulder, the DELTOID muscle with its front part raises the hand directly upward, as in taking an oath. Its back part lifts the shoulders in the line of dignity. Holding a bundle in the arms, or a child, requires the use of the BICEPS muscle with parts of the PECTORIS marked "parenity" and "caressing."

The TRICEPS muscle (not the BICEPS) is the muscle for striking. The blacksmith and carpenter require this large. It is evident that the various kinds of labor call into action different sets of muscles and therefore different groups of mental faculties. Each kind of labor then has its specific effect on mental culture.

The central line and focus of the PECTORIS muscle is marked in front with a star, the B or breast focus. On the back, the corresponding line of the TRAPEZIUS is marked with a cross, as the heart focus. Lower down on the back a cross marks the focus of action for the lower limbs. These two balance on the minor axis, passing through the stomach, solar plexus, liver, spleen and pancreas. Hence movements of the upper and the lower limbs together react on the central organs of nutrition and stimulate the appetite.

We are to look upon every muscle, every part of the body, as vitalized by the faculties of the soul; it is pervaded by our spiritual life, as its sympathetic and responsive instrument. Back of every muscular

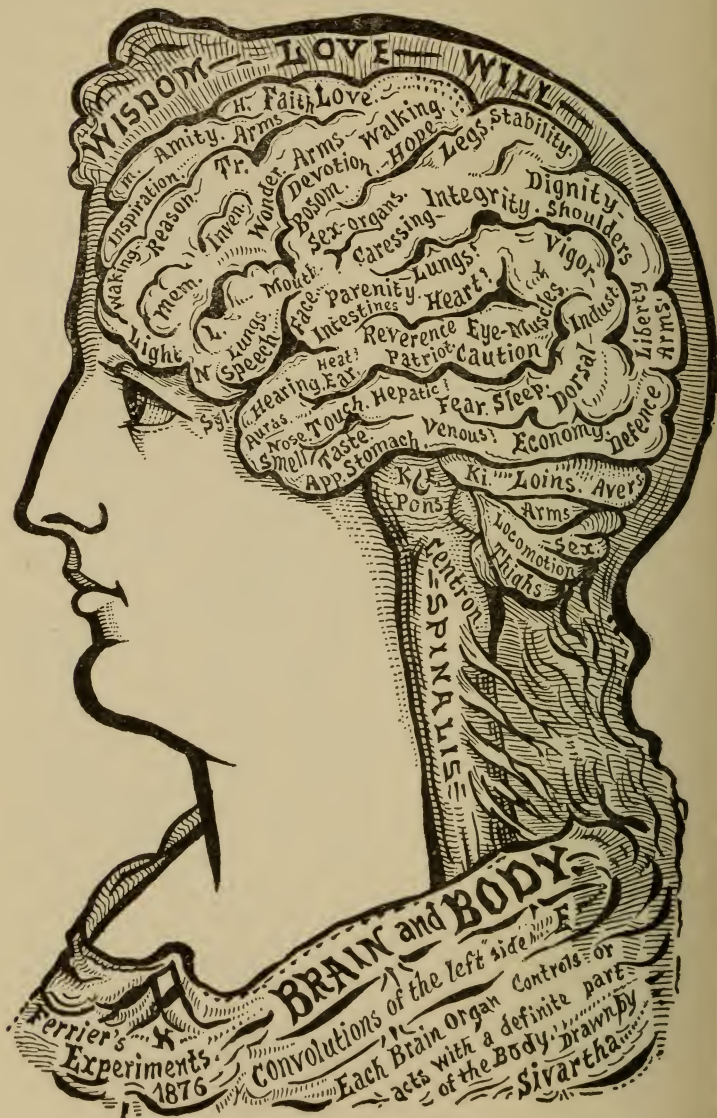
movement there must be a thought, an emotion and a purpose of the soul. And this vital law explains why, if we wish a sound and permanent culture of the muscles, actual labors, with definite products in view, are far superior to any possible system of athletics or gymnastics. The latter use the body without much use of the brain. They violate a basic law of organic unity. They give spasmodic and not enduring strength.

A NORMAL SYSTEM OF GESTURES will be all that will remain of gymnastic exercises in a true system of education. Normal gestures follow the line of the brain-fibers, as we may see from studying the chart. And this law governs the vocal gestures as well as the movements of the limbs, the trunk and the expressions of the face. The inflections of the voice follow the mimetic law. And each vocal sound is a gesture of the mouth, made by moving some parts of the mouth in the line of some brain organ. And these lines give us the natural meaning of each sound as embodied in the Vesona or universal language.

The brain movements were finally demonstrated by the experiments of Ferrier, and published in his "Functions of the Brain," 1876. These were made chiefly on the brains of monkeys, dogs, cats and birds. Currents of electricity were applied to different parts of the brain and the resulting movements carefully noted. Eminent physiologists of Europe and America have repeated, and indorsed the validity, of these experiments. The movements thus elicited were GESTURES, always taking the line of the brain organ excited. The engraving on page 156 gives

the principal part of the organs located in this way. It was a misconception on the part of some scientists to name these "motor centers." Ferrier says that the movements were evidently made to express feelings; they were true gestures. Our drawing shows the external surface of the brain, the folding or convolutions. Ferrier only marks what parts of the body were responsively excited by each region of the brain. We have added the name of the mental faculty belonging there.

The current from an organ of the brain goes over a long and curved path in order to reach a muscle. How, then, does it move the latter in its own line of direction? It can only be by inducing its own state of polarity in the muscular fibers. Thus polarized they at once assume the same direction as the brain-faculty. This is the only explanation science can now offer concerning these responsive actions.



FORMS OF TRUTH.

KNOWLEDGE.

SCIENCE—Mathematics, Biology, Physics.

LETTERS—Erudition, Ideas, Literature.

ARTS—Rules, Employments, Home Arts.

LANGUAGE.

RHETORIC—Syntax, Composition, Prosodics.

WORDS—Symbols, Nouns, Modifiers.

EXPRESSION—Speaking, Music, Gesture.

RELATION.

EXISTENCE—Verity, Being, Negation.

STATE—Condition, Standing, Possibility.

CAUSALITY—Means, Actor, End.

MENTALITY.

IDEATION.

PERCEPTION—Observing, Experiment, Measuring.

RETENTION—Attention, Recollection, Classing.

REFLECTION—Conception, Analysis, Invention.

SOCIATION.

CULTURE—Morals, Entertainment, Manners.

SOCIABILITY—Affection, Intercourse, Respect.

INDUSTRY—Organizing, Conducting, Distributing.

SENSATION.

MENTOSENSE—Vision, Audition, Aurosense.

UNOSENSE—Existence, Pleasure, Pain.

TACTO-SENSE—Smell, Taste, Touch.

VITALITY.

GENERATION.

SEXATION—Procreation, Semination, Breeding.

GESTATION—Ovulation, Cell-genesis, Nidification.

MATURATION—Nourishing, Parturition, Harvesting.

VITATION.

INGESTION—Salivation, Deglutition, Mastication.

NUTRITION—Digestion, Assimilation, Circulation.

EGESTION—Respiration, Exhaustion, Excretion.

MOTATION.

WORKING—Handling, Holding, Moving.

RESTORING—Mento-Rest, Recovery, Playing.

LOCOMOTION—Flying, Footing, Swimming.

Wealth and Industry

CHAPTER SIXTH.

WEALTH AND INDUSTRY.

SCIENCE IS A BUILDER. Its hand is art, its work is civilization. Behind its working hand is the warm and throbbing heart and radiant brain. The ideal dreams of one age become the scientific verities of the next.

Science questions all things. But if it destroys the old, it puts something new and better in its place. If it strips the fantastic garb of custom from the form of Truth, it does this to show the truth in its native loveliness.

For sixty years past the thoughtful minds of Christian countries have been asking how it is that long established forms of government and methods of business have yet failed to secure the comforts of life and a little of its luxuries to more than one-half of the active producers. And all this in face of the fact that science and invention have enormously increased the productive power of man.

The best minds among scientific men are compelled to think that our methods and institutions include fundamental wrongs and fatal defects. And that no amount of good motives or high intentions can ever bring good results out of these bad systems.

Civilism left its industry without organization, to be the prey of fierce and selfish competition. Its best possible results brought wealth and comfort

to the few, while poverty was the hopeless lot of the masses. In the greatest and wealthiest city of the world, the Prime Minister said that "there were two hundred thousand people who do not have as good a place to sleep as we ordinarily give to a horse!" "In a large and increasing body of the population, misery reigns supreme," says Prof. Huxley.

ARE NOT THINGS BETTER in the United States, where the people themselves are the supreme law-makers, and where for a century they have established liberty and equality? Alas! they are not enough better to be worth mentioning.

But the statesmen, the political economists and the newspapers do their best to persuade the people that here every man has an equal chance with the rest to acquire wealth; that it is a man's own fault, his lack of industry, thrift and judgment, if he does not gather wealth and the comforts and luxuries for himself and family. Let us look at this proposition a moment and we shall perceive its vicious and hateful falsehood. In any of the ordinary industries, in anything except mining, a man by his own labor cannot in forty years accumulate more than ten thousand dollars. In most of the industries he could not accumulate three thousand. At the end of that time, this amount would give him a small cottage and a lot of his own.

HIS ONLY CHANCE for getting rich is by employing others and making a profit out of their labors. Anybody can do this who wants to, they tell us. Very well. Suppose now that everybody, all the working people, decide that they want to get rich. So they all become employers. They do not wor

with their own hands. Now who is left to do the work? They all had a right to be masters instead of workmen, according to the popular teaching.

We see that such teaching was a wicked falsehood, invented to delude the masses with the idea that they had individual liberty, freedom of choice and equal opportunities. In the United States a man's chance of getting moderately rich is only one in three hundred!

The affairs of industry, of production and distribution, have been left in the hands of capitalists with nothing to control them but their own selfish interests, actually responsible to nobody and boasting that they can buy up legislatures. A great journal openly asserts that for fifty years no question in Parliament has been settled or discussed on the basis of its justice and right, but only on that of its expediency. The capitalists assert their right to dictate and regulate the scale of wages, and to keep this down to as low a point as they choose, the workmen having no rights in the case except to submit. The vast aggregations of capital place the workmen and the small capitalist at the utmost disadvantage.

In Britain and America it is conceded that the people, through their chosen representatives, have a right to make such laws as they like. And this right surely includes THE RIGHT TO EXAMINE AND DISCUSS THE BASIS OF ALL RIGHT AND JUSTICE. The people have a right to know if there is not some system of wealth and industry that would secure the material conditions of happiness for all the people, for every human being, and not, as at present, merely for a small and limited class of persons. Many mil-

lions of working people, as well as a multitude of professional men, are now asking this question, and they will keep on asking it in louder and louder tones, until there is a just, a wise, and a practical answer.

THE BASIS OF RIGHTS. Every person has a natural right to the proper conditions, development and use of each faculty. Rights cannot be created or transferred by men.

As all human beings, of either sex and of all races, have the same number and kind of faculties, therefore all have the same great classes of personal and social rights.

A man has a right to pure air, for the lungs require that to do their work of purifying the blood. He has a right to food, for the stomach needs that to make blood with. He has a right to work, for good muscles can never be satisfied with idleness.

The argument in regard to rights of the bodily organs applies to the brain organs with equal force. Man has a right to general knowledge because his faculty of memory requires that to use in every employment. He has a right to science because the organ of reason can only be satisfied by clear explanations, and the scientific form of knowledge is always practical; it always tells us how to do a thing with success.

Man has a right to friends, the society of his fellow beings, for without these he cannot use and satisfy his faculties of fraternal love, parental love, sex-love and philanthropy. By associating with others in organized society he gains the conditions required for the free exercise of his social faculties. It is not true, as many statesmen have taught, that "when men

enter civil society they surrender certain rights or liberties in exchange for other benefits which arise from the association." If isolated from his fellows, he would lose the freedom to use all of his social faculties, and none of his other mental powers could attain a full development.

TRUE FREEDOM CONSISTS, first, in the presence of the right conditions for the full and natural exercise of every faculty; second, in a normal internal state of the faculties, and third, in the absence of false external restraint.

I am not free to eat unless there is some accessible food to be eaten. I am not free to use my eyes unless there is light to see with. Place a man on a plank far out to sea and away from any boat or ship. Is he free to travel, free to eat, free to enjoy society? Yet he is let alone; nobody interferes with him. We see that the mere absence of restraint is not sufficient to constitute a state of freedom. The positive side of freedom is quite as important as the negative side.

THE SAVAGE AMERICAN of five centuries ago was not as free to travel as his white successor is to-day. He could roam where he liked? Yes; by fair exertion he could walk forty miles in a day. With no more exertion the white man can earn ten shillings or three dollars and pay his fare to ride on the railway train three times that distance. In no direction has the civilized man less freedom than the savage. In walking through a forest or across the meadowland, Tecumseh or Red Jacket saw a hundred times less than William Hooker or Asa Gray.

THE STATE OF HARMONISM, the new civilization, proposes a social organism in which the laws of

man's nature are themselves the accepted laws of society, and where all parts of his nature are represented. By fulfilling the duties of such a life, by acting in concert with others, by loving and being loved, by these alone can any person secure the full measure of freedom. The laws of such a society cannot restrict any person's freedom, because they are true statements of those laws which are a part of the nature of each person. The acting forces are from within and not from without.

THE QUANTITY OF A RIGHT may depend upon the degree to which its faculty is developed. A man with a small organ of reason would have a right to use it in learning science, for he needs this kind of knowledge though he is only a plowman or a digger of ditches. But he has no right to use his small organ of reason in trying to lead the scientific pursuits of others. For such leadership requires a full endowment of this faculty. A man with a moderate brain-organ of economy needs wealth to use as truly, and often as much, as the ablest financier. It takes as much food to nourish him, as much clothing to keep him warm. The beauties of art speak as strongly to his imagination and his heart.

GOVERNMENTS DERIVE their just powers from being in harmony with the nature and the wants of man.

This is a widely different statement from that of the American Declaration of Independence. In that famous document the "consent of the people" is declared to be the source of the just powers of government. This would appear to have some truth in it, if it were true that men only consent to things which

are right and just. But all through past history both men and nations have "consented" to bad laws, wrong social methods, and to the rule of selfish leaders. The people may have given this consent from their ignorance or from their lack of moral courage to ask or demand what was right. They consent to a multitude of laws which they afterward repeal and change. They often consent to a law or a measure as "being the lesser of two evils." They justify bad and defective laws and systems with the plea that "the world has never had anything better." "This government is the best in the world," they tell us, as though that were a sufficient reason why we should not wish for any changes in it!

When we accept the laws in the constitution of man as supreme authority in public or national life; when we measure present and past systems by this high and unchanging standard, then we perceive at once their vast defects, and we understand why they failed to establish the conditions of universal happiness. The great leaders were always "looking backward;" they were measuring everything in collective life or law and its results by past human experience. Their standard was itself imperfect.

If scientific men are fallible like other mortals, it is still true that scientific knowledge is always the most mature, the most certain and the most safe of all that human beings know. It is the most free from the warping influences of prejudice, passion and conservative impulses. Its proofs are always open to examination.

RIGHTS OF WEALTH. Man is normally a member of society and he cannot acquire extensive wealth

unless he combines his labor with that of his fellows. The rights of wealth thus become common and social, as well as personal.

Three objects are gained through combined labors. First, increased power of production; second, economy and security in the use of wealth; third, facilities for making exchanges of property

Capital is accumulated wealth, that surplus beyond current consumption which may be applied to increase or maintain production. As capital is always the result or product of labor, the two cannot be really in conflict. There can be no real antagonism between the act which produces a thing and the thing itself. But the economic system of civilism has always made a conflict of interests between the persons whose labor produced wealth and another class who always sought to appropriate the larger part of that wealth without doing any manual labor themselves.

The conflict was between two classes. It has reached a higher degree of bitterness in our own day than ever before. And in our own day it will come to a final end. For the masses are studying this problem and they will persist until a remedy is found and applied.

NATURE GIVES WEALTH only as a reward of labor. Wild fruits may tempt the hand of man, but some work must be done even to pick these. In some countries wild grain, wheat, or rice, or maize, may offer itself ready grown for sustenance. But effort, labor, is required to gather and preserve this grain. The savage who finds a nugget of gold cannot use this to supply himself with food, clothing or shelter. In a pastoral state, where men depend upon flocks and

herds, some labor is still necessary. Abraham was rich in sheep and cattle. But he employed three hundred and eighteen servants to help in this shepherd work. He could sell sheep for Egyptian gold and get the well housed goldsmiths of old Egypt to make the ring and bracelets for Isaac's wedding pledge to Rebecca.

Brain work counts along with muscle work as productive power, all the way from the cunning of the savage hunter to the skill of the highest civilized artisan. But the brain work which helps in production, which invents, directs or discovers, this work is one kind of a thing. And that brain work which contrives to get away with the larger share of the product after the labor is done, that brain work requires quite a different set of mental faculties. It calls into its constant service secrecy, aggression, fraud, fear and other abnormal phases of the lower faculties. The great merchant princes, railway kings, bankers and brokers of our day depend upon constant misrepresentation, tricks and deception for their success in dealing with the public and even with each other. They could not buy and sell to advantage, manipulate stocks, "bull and bear" the markets, or even build the railways, without constantly making the people believe things which they themselves know to be untrue. They call this "business tact," and when a whole nation deceives another it is diplomacy. Men who think themselves perfectly honorable, who would scorn to lie in other relations of life, do not hesitate to use these selfish deceptions in their daily business affairs. They feel that they must do as the rest do or they cannot succeed and would quickly be pushed to the wall.

LAW OF OWNERSHIP. THERE MUST BE COLLECTIVE OWNERSHIP FOR ALL THINGS OF COLLECTIVE USE, AND PRIVATE OWNERSHIP FOR ALL THINGS OF PRIVATE OR PERSONAL USE.

This is the natural law. It bases ownership upon production and use. Those things which are used by one person alone should be owned by that person. This includes clothing, private rooms and many kinds of tools. In all these, each person has individual character, peculiarities and tastes to gratify, and what is adapted to one person is not adapted to another.

All those things which are used together by two or more persons should be owned by them collectively. One person alone could not occupy and use a well-arranged house, and therefore should not own it. The 144 or 260 persons who occupy a mansion in harmonism would own it collectively. They would have common rights in the parlor, dining room, classroom, library, court and yards. But each person has two or three private rooms, and these are furnished; the chairs, tables, seats, walls and draperies, in form and color, are in harmony with that person's character, tastes and employment.

The member owns these private rooms in a more complete sense than was ever the case in civilism. For he cannot be deprived of them. The town or the state government cannot take them away in payment for delinquent taxes. Houses and lands are never taxed. That would be folly. The taxes are levied on surplus and movable wealth. But houses and lands are not surplus wealth; they are needed for constant use. It would be as foolish to tax these as it would be to tax and take away the working tools

which a man needs for daily use. A wise government would not wish to do such short-sighted things as that. It would not cut off its own hands.

Property should mean that which is proper or appropriate to a person or persons. There should always be a fitness between the thing owned and the owner.

A highway, a road, a railway or a waterway, is used by the whole public, and they should be its owners. A farm can only be well cultivated by a group of people or a society, and it should be owned by them. Homes, temples, workshops, factories, storehouses, machinery, telephones or telegraphs, lands and highways of all kinds, are all used by a common public, and should therefore be owned collectively.

The city, the county, the state, or the nation, each owns property. For example, here is a street, Broadway or Drury Lane, that is wholly within the city, it does not extend beyond it. Very well, the city then should own it, and the city engineer would supervise and keep it in repair. It would be absurd for the nation to own it, or to say that it owned the street. The national engineer could not possibly supervise all the streets in a hundred or a thousand cities. But he could supervise the comparatively few long railways or highways which extended through the length and breadth of a nation. Even this would require that he should have under him many groups of assistants, each of these having its allotted sections.

The collective ownership of all public utilities seems so natural, so just, so in harmony with all humane wisdom, that one may well wonder why it has been postponed so long. But selfishness blinds

those in whom it rules as well as those who submit to its heartless exactions.

The grouping of members in the new social order secures to each one a free choice of employment. Already in the new education, as sketched in the last chapter, the boy or girl will have been taught how to use each of his faculties with the greatest success or efficiency. The industries are so organized that the mental and physical labor of each member is fully productive and no part of it is wasted. And the normal law is that each member receives back the full product of his labor, or else receives in exchange with some one else, that which has cost that other person an equal amount of labor, or in other terms an equal amount of vital force.

The amount of this force can be measured with sufficient exactness for practical purposes. We must consider that in doing any piece of work, other things have been involved besides the muscular force of the workman. The tools he used and the materials required in the work had to be made and furnished by somebody. Even the wearing out of his own clothes in working is an element of cost in the case. The unproductive time used in his industrial and general education is also an element.

By the scientific law for the conservation of forces, we know that each person expends and can expend just as much force as he has received, and no more. He may use this force unwisely, he may employ wasteful methods, or he may use it with the utmost efficiency. The law teaches that man can transfer forces from one object to another. But he cannot create them. This natural law shows that where

the plan of society makes these forces wholly productive there each member will produce as much as he consumes. And the normal wants of each member may be safely made the basis for the distribution of the products of labor. "From each according to his ability; to each according to his needs." With such a system there is no danger that any one will receive more than his just share.

Nature has worked for us already. She has expended constructive force in forming the wood, textile tissues, fuel, fruits, grains and minerals. She has lifted masses of water into the reservoirs of clouds and mountains, to be released by man to turn his machines of production. Man unites his forces with these stores of nature and thus carries his production of wealth far beyond the demands for present consumption. In many forms this surplus gives each succeeding generation, or even each succeeding year, a better vantage ground, better resources for a mastery of nature and of the conditions for happiness.

HAS ANY PERSON A RIGHT to become rich from the profits on other men's labor while they remain poor? This is a vital question. If this right exists naturally, if its basis is natural law, then poverty and wealth, misery and affluence, will march side by side through all coming time. We must search this question to the very bottom.

The whole growth of human society, the vast upward march of man from brutal savagism to humane civilization, all this was possible only through the specialization of labor. It was the division of the different employments among those

who have the talent to excel in each special kind of work. Then the men of each trade must exchange their products with those of other trades. If one man makes shoes and nothing else, then the farmer must raise enough extra food to supply the shoemaker. The farmer is dependent upon the tradesman, the grocer, the carpenter, the shoemaker and many other trades. And conversely, each of these is dependent upon the farmer and upon all the others. A vast system of mutual dependencies is thus an essential and necessary condition of civilization. We cannot, therefore, settle the rights of any class of persons without reference to the rights and relations of the other classes.

Under this beneficent law of evolution we find that the carpenter builds as good houses for others as he does for his own family; the shoemaker makes as good shoes for other children as for his own, and the watchmaker offers to the public as good timekeepers as the one he carries in his own pocket. And so of every trade or employment. The whole community gets equal benefits from each man's special skill. All scientific men of our day know that this is a proved law of evolution.

But there is one kind of talent or ability that insists upon its right to disregard, to transgress this basic law. The man who has financial talent, the ability to judge of property and its investments, this man claims the right to use his talent chiefly for the benefit of himself and his family. This talent by itself can produce nothing. It can only accumulate by using the labor of others and giving them back less than they produce. By employing a large number

of workers, the profits are sufficient to make this man wealthy while those who did the work remain poor.

This financier has used his own mental force, but is this mental force three hundred times greater than that which is used by each one of his three hundred workmen? Science, applied to brain action, proves that he has exerted only a little more brain force than the average man of skill working for him. The financier has received three hundred times as much as each workman got. Where did he get his right to this great excess? He may say that it is the established custom among men; they have always employed others for the profits on their labor. Well, if custom is the only basis of the right, then if workmen choose, they can exchange that custom and establish an utterly different one in its place. And they will make this change as soon as they once consider the matter.

“But these workmen need the talent of the employer; they could not get along without his judgment to plan, to invest and to oversee the work.” Very well, neither could the employer get along without the trained skill and the experienced judgment of each worker. Is financial talent the only God-like and worthy thing in the world? Is it so precious and so scarce that we must pay such an enormous and crushing price for its use? Is selfishness more noble than all other virtues?

No good or honest reason has ever been given why the financier's special talent should be exempt from the great natural law of specialization and social interdependence. We have a right to demand that he shall use his talent, not chiefly for his own interests,

but equally for those of the whole society. We would not do away with financiers, with directors for workmen.

In the new social order, from the nation down to the town, there is a board of trustees in each band. This consists of one of the central officers, with the recorder, the costumer, sanitist, economist, conductor and marshal. This board has the general care of the collective property. These officers must be good financiers, good judges of property and its investments, else they are not fit and qualified to be candidates for election to these offices. Hence each community and the whole nation is able to avail itself of the best financial talent that exists. In long established communities, like the Shakers and the Economists, where millions of dollars are handled, the trustees have rarely made poor investments and the people have found no difficulty in getting the best men for these places.

It has been commonly thought and said that if men were not allowed the chance to become rich by profit and speculation, then there would be no ambition, no enterprise and invention; everything would sink down to a dead level. There is no truth in such an idea. It is proved false by all the facts. Among the six thousand Shakers, where the property is all held in common, there have been a greater number of useful and practical inventions than among a similar number of people anywhere else in the world. Selfishness, the desire to gain wealth for one's self, has not been the inspiring motive that led to the great inventions and discoveries. Selfishness did not invent the steam engine, the printing press or the telegraph. It is true

that selfishness has used and controlled these. Selfishness did not inspire the hand of Michael Angelo or the genius of Shakespeare and Newton.

In a state of harmonism the financier will be able to gratify his dominant faculty, his capacity to plan, discriminate, direct and control vast operations; he will enjoy all this a great deal more than he does now. For he will know that the direct results of his operations will bring happiness to a far greater number of human beings, and these results will bring want and sorrow to none. "Will he have as much means, as many things, for his own personal enjoyment?" Yes, and much more. The huge wastefulness of the present way of doing things will cease; there will be much more for all. The greatest architects will design the mansions; the greatest artists will plan their decorations and furnishings. The financier, like the artist or the poet, will have the love of the whole people, not their envy and hatred.

A large number of the same men who are now the real leaders in business affairs may still be leaders in the new order of things. The altruistic motives will take the place of selfish motives. The fierce struggle for advantage which is needed in competition will give place to concert of action and interests. All business methods will bear the light of day.

The current methods of business and property have always required that every man must have good business or financial talent, or else he must suffer hopeless poverty. What would we think now of that state of society where every man must be a good weaver and tailor or else go without clothes to his back; where he must be a good shoemaker or else go barefoot; where

he must be a good watchmaker or go without a time-piece? And so to the end of the long list of civilized comforts and commodities. Yet that would be no more absurd than it is now when we require that every man must be a good bargain driver, a good economist, a shrewd investor, or else be a poor man all his life. In all other things, except in owning and controlling property, we give each man the benefit of other people's talent. Our system now (1884) requires that the property talent shall be universal, when we know that no other kind of talent is so.

The board of trustees, seven persons, with this kind of skill, are quite sufficient to do the work for three hundred people. "Would the people be as free to choose as they are now?" Yes, they would be more free, for their right of choice in all things is guaranteed by the laws and plans embodied in the very constitution of the new order. And this right of choice extends to many important things where even the richest men had no choice in past systems.

IF WE ALLOW that it is right for one person to own, control and use for profit the labor and property used by others, then there is no limit to the possible rapacity and selfish greed of gain. It would be perfectly right for one man, or for a small number of men at the head of a trust, to own and control the whole world and use all this for selfish purposes. If they had cunning, sagacity and persistence enough, it would be right for them to make slaves of all men, allowing these men enough food, clothing and shelter to keep them in a good working condition. This is a perfectly logical right of the long-established system of private ownership and profits. We have allowed

the capitalist, the employer, to decide for himself what are "fair wages" and "fair profits." While this page is being written, armed soldiers are marching to and fro through the streets to protect the employers in this "right" against their workmen.

Three things would prevent such a gigantic accumulation of wealth and power by a single man or a single trust. First, the selfishness of other men would step in and destroy them by physical force if need be; second, the conservative sense of the nations and the love of liberty might decide that it was "carrying things too far;" or, third, the moral sense of right, the ideals of human happiness which have long inspired the hopes of the world, and the discovery of great social laws, will lead the large hearted teachers of men, and the millions of toilers, to institute a new system of social life, of property and government.

The new thought of industrial freedom, of a nobler life for the working man, this thought has grown too large and too strong to be turned backward. It rests upon a law of evolution, upon forces of human growth more far reaching in their sweep, more tremendous in their slow but onward movements, than all the swelling tides of human greed and selfish power.

Modern wisdom has organized a system of education to make knowledge universal among the people. But knowledge is of no value unless it is used. And its chief application is in the varied forms of industry. If it was wise to organize education, then it is equally wise to organize industry as the embodiment of knowledge. Shall this last be done in the interests of all the people, as it was in the case of education, where

the privileges and benefits reached all classes equally? Or shall industry be organized chiefly in the interests of a small class, the employers and capitalists, leaving the workmen to get whatever pittance of wages these masters choose to give? That is the kind of organized industry that the trusts and the capitalists of the nineteenth century propose to establish.

You have put a book into the hands of the workman and he is thinking. And he will choose for himself. The cry of "Utopian" will not frighten him. He asks only for justice. He will not accept "expediency," or "custom," or "vested rights" in place of it. The workmen are a majority of the people. In the United States and in Britain they have the physical and the political power to make the most fundamental changes if they choose.

MORE THAN THIRTY MILLIONS OF PEOPLE to-day think that our present system of ownership, or control of production and distribution, is grossly unjust and unfair to the workmen. And that neither the workmen nor the employer can have the true conditions of happiness while the present system continues.

These millions believe, with a great leader of European science, "That the entire reorganization of human society, upon a new and purely scientific basis, is not only practicable, but is the only political object much worth winning." They believe with Draper, in his great work, "The Intellectual Development of Europe," that "Europe and America are now entering upon the phase of maturity. Each of the nations will attempt its own intellectual organization, and will accomplish it more or less perfectly, as certainly

as that bees will build combs and fill them with honey. The excellence of the result will turn altogether on the suitability and perfection of the means."

In our second chapter we have shown that science has now found in the constitution of man, the basic laws of social structure and social life. That these laws explain clearly all the steps in the past history of man. And that they furnish us a perfectly clear and ample guide for the work of forming new institutions. They show how we may pass, without violence and without loss, into the life of a perfect social order; into an order so completely in harmony with the nature of man, that it will permit of his continuous growth and evolution through all coming ages.

THE SYSTEM of combined industry in the new order opens a thousand new channels for the highest ambition in the fields of science, labor, culture and religion. And unlike the groveling lust for wealth and power, these higher channels lead only to the welfare of humanity. In every band, through all the seven ranks, there is a department of enterprises, of displays and of awards. Every person is therefore sure to receive, not only assistance in his undertakings, but the fullest measure of praise and reward for whatever good or great thing he may achieve.

THE PRIMAL CURSE of labor will be removed in harmonism. For manual or physical labor will be performed with a new spirit. It will be surrounded with the most attractive conditions. The worker will reap the fullest result of his toil. And manual labor will be honored as highly as brain work ever has been. The brain and the body will work in complete unison. The worker will put his spirit into the

work, and labor will no longer be drudgery. When labor is done with the right spirit, with the soul as well as the body, then it will not be exhausting; we shall accumulate as much vital force as we expend. Four hours a day, on the average, for physical labor will be widely different in its effects from the excessive toils of civilism. But more than this, the laws of interchange between the groups, and the responses of these to each other, will exalt labor to the rank of the noblest harmonies.

In another chapter we have already spoken of these responsive exchanges. They are a means by which the members secure a wide and systematic variety in their work and pleasures. They are not tied down to a monotonous round of unvaried toil. By thus calling all their faculties into activity they prevent that partial development of personal character which would result from using a few faculties incessantly in one vocation.

The members of society make temporary exchanges of employment or of position with those who are their thirds, fifths or octaves. For example, those in the department of food-culture may exchange with those who are in the department of luxuries; those in the groups of wealth may exchange with those in the groups of rulership. The mind is rested and harmonized by passing from the work or amusements of the groups of art to those in the group of science, or from those in the group of familism to those of religion, or from those of letters to those of culture. Such exchanges and harmonies were not possible in any of the societies of civilism.

SYSTEMS OF MONEY. How shall we effect the

exchange of products; how shall we secure to every man the full results of his labor?

The answer must be very different in the new order from what it could have been in the old. First, we know that every person has done his share. With the new system of integral culture we know that there is no "unskilled" labor. With universal employment there is no idler, no non-producer. We know that every one over seven years of age has produced more than enough for the three primal wants of food, clothing and shelter and these of the best quality. Therefore we are perfectly safe in securing and assuring these to each member. We know that the average cost of these is practically the same, no matter how much the individual tastes and work may differ. With everything organized, it is an easy thing to know what is the average cost of living at any time.

Shall we keep a careful account of what labor each person has done and for all above the cost of these necessities, pay them in money or some equivalent? In that case the money must be issued by the national government so that it will pass anywhere. The money must not be gold, for that is subject to far greater fluctuations in the quantity produced than is the case with most commodities. We need a less variable standard. We can take as a unit one hour of labor, a Stad, or for the smallest unit, a Stod, or five minutes of labor. The money would consist of labor notes, representing so many of these units. The money must be equal in volume to the necessities of exchange. This money could be used to buy all salable things,

NO INTEREST OR USURY could have any place in the new order. No person would need to borrow any money. A man wishes to travel, but as the highways have been built and are maintained by surplus public wealth, they belong to all alike, and there are no railway or steamship fares. Besides all that, in harmonism we know that man is a social being, that distant communities need to be linked by the ties of friendship and that an intelligent person is improved by travel. When the man returns, he will be a more valuable member of society than before. What about hotel bills? In the new order they have very few hotels. In every mansion, in every band, there is a department of receptions and the receptor with his assistants is there to receive, assist and entertain guests. Hotels might be required in case of conventions and great gatherings of visitors.

In the human body, if any organ demands more blood than its normal functions require, then we know that the organ is diseased, that something is the matter and it needs attention. And so in the social organism A member might be extravagant or foolish in his demands, but in that case he has not been well educated or else not well born. And society itself is at fault. It has not furnished good conditions.

We have left out of our estimate the precious stones, because the cost or price of these has been almost wholly fictitious, bearing no proportion to their actual beauty and value. The larger stones would become the property of the general public, so that all could enjoy them.

When the new order is completely established we shall do away with the use of money, for we shall all

understand the spiritual laws well enough to know the actual wants, mental or physical, of every member; and these wants will be made the basis of distribution. Will not some members be ashamed to make known their wants? They will not. For they will know that their right to do so is a fundamental law and provision of society. They will no more be ashamed than they are now to use the money they get as wages.

Perhaps the mass of Christians believe, as they say, that human beings are too selfish to live in such a state of society as we have described, yet they think that they are fit to go to heaven. Do they think that heaven is a place where Selfishness sits enthroned as supreme director of affairs? Are they sincere in praying for "God's will to be done on earth as it is in heaven?"

If we are told that "the fundamental cause of social want and misery is human sin and depravity, we shall answer 'yes.' " And the human sins that are most fiercely and sternly denounced in the Bible, from Isaiah down to Christ and James and John, are the oppression of the poor, the burden of taxes, the devouring of widows' houses, the greed of riches and the pride of wealth. It is the rich man who cannot enter the kingdom of God; it is "the rich men, the rulers, the mighty men, who will call on the rocks to hide them from the wrath of the Lamb." If Christians profess to believe the words of Christ, they must be judged by these words.

COMPENSATION. If the various governments, municipal, state or national, assume collective ownership of all public utilities, then we are asked how are

the capitalists, the great private owners of the present, to be compensated, how paid for all this property? In answer to this it may well be asked, "Who is to pay the people themselves for what the capitalist system has taken from them and their ancestors through the long centuries, the light and joy of life, liberty and happiness which that system has shut off for a hundred generations?" "The people are but reclaiming their own heritage, and the work of their own hands kept back from them by fraud, artifice and force."

The capitalists obtained it by methods which left the producers to suffer. It will be taken back by methods which will secure to the capitalists all the good things that any one else has in the nation. The people have already paid three or four times over for the great railway lines of the United States. "What about inherited wealth?" An inherited disease is not health; an inherited wrong is not thereby changed to a right.

The people are often told that "the working classes are better off now than they were sixty years ago." But they are not as well off in proportion to what their labor produces. The great mass of the wealth goes into fewer and fewer hands. In the United States it becomes more and more difficult to get employment. The people were not "well" off sixty years ago, and you cannot have a "better" without a "well."

The rich, on an average, are not more selfish than the workers. The majority of them have gone into wealth-getting without a thought that there was anything wrong about it. The system of wages and

profits, the big fish eating the little ones, this was approved by ages of use. Almost any one of these workmen would get rich out of others' labor if he had a chance. It was easy not to see the inherent badness of the system which heaped up wealth for the few to spend, while the many moiled in the narrowness of poverty.

In the nineteenth century it was quite the thing for a man to amass great wealth and then give large sums to found colleges or public libraries or in large charities. In this way these men persuaded themselves, and the public as well, that they were benevolent and large hearted. But the wealth thus used did not go back to those men whose hard labor had been the chief thing in its production. Oh, no indeed. It did help to blind the public to the vicious defects of the whole system of ownership, a system that forever leaves the toiler defeated in the struggle for existence. The sociologist might seek to comfort him with the idea that it was nature's law, "the survival of the fittest." But that pitiless law does not mean "the survival of the best." It does mean the triumph and survival of narrow selfishness, of faculties which mark the beast but not the god in man. It means a practical denial of human brotherhood. It means at once a denial and a perversion of the great law of mutual dependence which binds all parts of the social organism together, so that you cannot injure one part without also injuring the other parts; that law of the division of labor which has made civilization itself possible, with all its wealth of resources.

That law of mutual, responsive life, deep-rooted in the geologic ages, will at last assert its full power,

At last Justice, Love and Wisdom will sit triumphant in the halls of state.

ORGANIZED INDUSTRIES must, of necessity, include all of the twelve departments. In looking at the tables we see that some form of labor belongs to each one of these. We name a single department as that of Industry, giving names to the others that may indicate their chief employments. The laws of Production apply to them all. The department of Letters produces books and newspapers; that of the Home produces food. So long as human beings have all of the twelve groups of faculties, just so long will they need all of these twelve departments.

Can we organize Production and Distribution, Collective Ownership and Universal employment without arranging these other departments, leaving them for the spontaneous action of the people at some time in the near future? Can we not put a single issue before the public, a simple platform that only includes the Economic demands, as the pressing needs of the present? The decisive answer to this is easily made. A true system of Economics, the production and use of commodities, requires work which properly belongs *to every one of these twelve departments*. And it cannot be done with the present machinery of government, in either Britain or America.

Suppose for a moment that a socialist party could come into power. It would stand face to face with all of these problems; it must deal with them or ignore them. To ignore them would be to confess itself impotent before living issues.

It would need to reorganize the national post-office department so that it would include the

telegraph, telephone and messenger sub-departments. For these are now to be under government control. They would need to rebuild or change the interior arrangement of every post-office in the United States. Each would need new officers, familiar with these two new kinds of work.

In harmonism we have placed these as part of the department of religion, with the courier at their head. They are used to unite the thoughts and feelings of the people throughout states and nations; but the responsive unity of thought and feeling is an essential part of true religion. We cannot ignore universal wants.

The socialists would need to reorganize the navy department, for now it only includes war vessels and not those engaged in commerce. They would need to make over the department of agriculture; now it is merely nominal and has no provisions for supervising the agriculture of the nation.

And so of each of the few departments now in the national government. Each must be remodeled and new ones added. To nationalize the system of schools would save many millions of dollars annually. In the fifth chapter we have proved that the fundamental plan of our schools must be changed or they cannot be adapted to a true education, such as must exist in a new social order.

We believe that it is the part of practical wisdom to know beforehand what changes are needed in the social structure and to set these honestly and fairly before the people. The task of reconstruction will be great and far reaching in its results. But it is not difficult to understand and to accomplish.

The people are now accustomed to a complex social

system, one that has many kinds of institutions, with a multitude of officers. If they are capable of understanding and using all these, then they will surely find no difficulty in understanding and in using the far simpler plan which we propose in harmonism, with its far less number of officers. The new social order fills a greater variety of functions, but with less than one-tenth of the social or political machinery which was required in the old.

THE GERMAN SOCIALISTS, Marx and Lasalle, had no natural standard to measure by, no light to guide them but the flickering lamp of human experience. It seemed to them, as expressed by a recent writer, "That life itself and everything that meanwhile makes life worth living, from the satisfaction of the most primary physical needs to the gratification of the most refined tastes, all that belongs to the development of mind as well as body, depends, first, last and always on the manner in which the production and distribution of wealth is regulated."

And so, these men thought, the whole list of problems in sociology resolve themselves into economics. "Give men universal employment, with the full products of their labor, owning all they use and produce, and free to make or unmake their own laws, then they will of themselves go on and develop the higher qualities in personal and social life; they will establish all necessary conditions of happiness."

But this thought and this hope is opposed to all human experience and to science as well. It is not true that people who have had the most wealth and the most leisure have made the best use of it, or even a good use of it. It depends immensely more upon

whether the institutions, the social machinery, the customs and motives of society, tend in the right direction; whether these favor the higher or the lower uses of property. A large part, nine-tenths of all we think and do, has some reference to our fellow beings; is more or less social in its character and its results. The production and the use of wealth involves social methods, social institutions. The manner in which we use our wealth assumes quite as great importance as its production and distribution. We can make a good or a bad use of it.

Is it a good use to waste \$100,000,000 a year in a poor system of education when we could save this with a good and a natural system? It is not even good economics. Is it a good use to waste billions a year because of the bad plans of all our cities and villages, when we could save this by adopting the rational plan for them? Is it good economics or good morals to let half of our children die before they are ten years old, before they can take an active part in the joys and the work of life, when all physiologists tell us that we could save this wholesale slaughter of the innocents by having departments, like that of familism, for their suitable care and protection? Already, in small communities like that at Oneida, they have proved this by many years of actual experiment. Is it wise, or even good economics, not to organize the departments of sanitation, when the greatest of medical men assure us that by these we could forever banish cholera, plague, small-pox, measles, la grippe and all the foul hosts of epidemic curses?

IT IS NOT WORTH WHILE to make fundamental

changes in government and institutions unless we have manhood, courage and wisdom enough to embody in these institutions the best scientific knowledge that man now possesses. It will cost no more to do this; it will require no more time, no more wealth, than it will to make the partial, economic changes which many socialists propose.

The present writer is not a novice, just opening his eyes to the need of social changes. He has given fifty years of an active life to a study of these social problems. Through history, through science and through personal observation in many countries, he has sought to examine these questions from every possible side. It was not until (in 1859) he had read more than forty books on social science and reforms, that he found why these many writers had all missed the source of an exact social science. They had failed to see that the source of all man's conscious social wants is in the mental faculties; that these organs of the brain are the acting forces that directly produce all social phenomena, all functions in society. To satisfy these wants men organize institutions and choose officers. It was an easy step from this to see that all these faculties and therefore wants must be represented by officers and departments in a complete social organism. So far in history, guided by history, experience or instinct, men had only represented the lower half of the faculties.

As each faculty produces its own class of wants, we should know with exactness the number of the faculties. The writer thought it worth while to spend three years in their careful analysis and classification. Even the matter of architecture took three

years of special study. The universal language has taken five solid years of work. If the present book is late in its appearance, the reader may rest assured that its positive style of statement is justified by a long and conscientious study of each subject introduced.

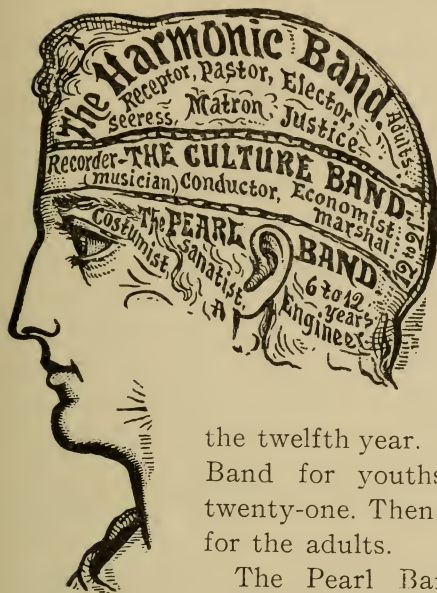
GREAT CAPTAINS of Industry will not be difficult to find when the time comes to call for them. In both Europe and America many large-hearted men of wealth, who employ hundreds or thousands of workmen, have already learned through a generous experience to see the safety as well as the wisdom of unselfishness. These employers have spent millions of dollars of their profits in furnishing attractive houses for the workmen, with good sanitary conditions, large gardens, reading rooms, swimming pools, entertainment halls, open air theaters and recreation grounds. They have made these as actual gifts or of easy purchase by the workmen, giving them back some of the fair profits of their own work. The employers have not done all this noble work because the civil law or the church required it of them. They have been prompted by their own sense of right, of humanity and natural justice, to make these great changes in the conditions of their workers. They have felt that the workers have helped to create their wealth and are entitled to share in the resulting prosperity. Not such prosperity as politicians love to talk about, such as is shown by "full dinner pails." Instead of that these workers enjoy the pleasure of large, well-kept dining halls with warm, well-cooked and well-served meals, at actual cost prices. And in their own charming homes these workmen eat breakfasts and suppers

prepared from the best of food, purchased at wholesale prices, by their own purveyors.

When the glad time comes for a full establishment of the higher social order, the workmen will turn for financial leaders to such men as William H. Lever and brother, of Birkenhead; the Cadburys, of Bournville, and the Krupps, of Germany. In the United States they will turn to such leaders as we find at the Briercliff Farms of Westchester, the Westinghouse Company at Wilmerding, the Heintz Company of Pittsburg, at Hopedale, Mass., and Ivorydale, Ohio; to Gov. Pingree, of Michigan; Mayor Jones, of Toledo, and others who have shown that large hearts can beat beneath sound financial heads and that the selfish system of ownership, so old in history, has not burned out all humane impulses from those who are capable of leading men in the practical works of life. We shall not lack for unselfish financiers.

On a following page we have summarized the imperative demands of the present time under the head of "The Twelve Foundations." These may serve as a working platform for a political party worthy to represent the normal evolution of our race. The planks of this platform make up a consistent whole. These objects can all be attained together more easily than if separated.

On the next page we have briefly given the transition forms by which to bring about the new social order. These simpler bands will have twelve officers instead of thirty-six. They will, however, have the same twelve departments, as shown in the tables. This simplifies the work of transition.



THE FRATERNAL BANDS are schools of culture for the new social order. Each individual band is graded in three parts.

First, and lowest is the Pearl Band for children up to

the twelfth year. Next is the Culture Band for youths from twelve to twenty-one. Then the Harmonic Band for the adults.

The Pearl Band is led by the sanatist and the Culture Band by the conductor. These two bands form the Sunday School, holding an hour's session each Sunday. The Culture Bands hold two sessions a week, Sunday and Thursday evenings.

As fraternal bands these will take the place of all existing fraternal or secret orders, by having a richer and more interesting symbolism; by being valuable schools of culture and study, and by a better assurance against want or lack of employment, and for care in case of sickness.

These bands will form the nucleus of the new social organism, each band having only to add the remaining officers to its list in order to be ready for the full work of practical life.

A band may commence with only seven officers. These are the center, or president; the pastor, recorder, costunist, sanatist, conductor and economist. These seven form the Board of Trustees and Directors. But it is best to have the twelve officers, one for each department, as shown below in the table. The officers are in pairs, the first male and the second female. The center may be of either sex, except in the national and unational bands.

The times of election are given in the second chapter. These fraternal bands are in seven ranks, the culture bands, primary bands, the city, county, state, nation and internation, or unation.

CENTER OR PRESIDENT—Presiding, supervision and unity.

RELIGION. Pastor—Rites, relief and messages.

MARRIAGE. Matron—Grouping, marriages, heredity.

LEARNING. Recorder—Records, music, publishing.

ARTS. Costunist—Designs, costume, decorations.

CULTURE. Receptor—Receptions, reform, the drama.

SCIENCE. Seeress—Social science, esthetics, inventions.

FAMILISM. Conductor—Schools, children, festivals.

THE HOME. Sanatist—Health, house and temperance.

INDUSTRY. Justice—Employment, judgment, equity.

RULERSHIP. Elector—Elections, training, displays.

COMMERCE. Engineer—Travel, buildings, work.

WEALTH. Economist—Stores, expenses, exchanges.

THE TWELVE FOUNDATIONS.

1st. The constitution must be based on the collective wants of man, with these represented in the twelve departments of the home, the arts, letters, science, culture, marriage, religion, familism, rulership, industry, wealth and commerce.

2d. Artistic homes for all, public sanitation and systematic earth culture.

3d. Social events and dates, such as elections, installations, etc., must be in unity with the natural periods of years, months and cycles.

4th. The officers and work of society must be dual or allotted equally and properly to the two sexes. Marriage laws must be national and thus uniform, and marriage be based upon love and adaptation.

5th. Science as the measure of truth, its universal diffusion, with the promotion and protection of scientific discoveries and inventions.

6th. The grouping of members in departments and work must give each one a free choice according to characters, tastes and capacities.

7th. Equity, unity and peace between all nations. Religion as the responsive unity of all life, with its laws in the nature of man, and proved by the methods of science.

8th. The schools must include the systematic daily culture of all the mental faculties, through appropriate studies, plays and labors; and there must be a true care and providence for children.

9th. Organized industries and universal employment, securing to all persons the full average results of their labor, with assurance against accident and want.

10th. Collective ownership by the people of all public utilities, of all things of collective use, and private ownership only for things of private or personal use.

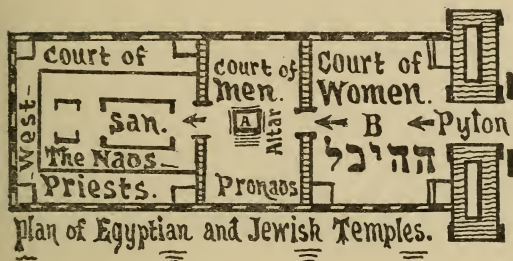
11th. The establishment of highways and commerce, the distribution and exchange of all products, to be based upon actual wants, present or prospective, throughout the nation.

12th. All officers must be elected, or impeached and deposed by a direct and free vote of those they are to officially represent. All laws, public measures and inventions to be adopted by a vote of the people through a referendum.

Science and Religion

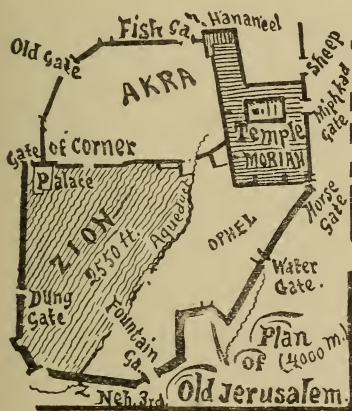
CHAPTER SEVENTH.

SCIENCE AND RELIGION.



A MIGHTY WAVE OF PROPHECY swept along the belt of civilization six centuries before the

Christian era. It reached from Europe far eastward to the Celestial Empire. It crystallized in the noble poetry and art of Greece; it glowed in the great Messianic visions of Isaiah; it turned that Wheel of the Law with which Gautama sought to elevate the masses of



Hindustan and it thrilled the dull heart of China through the voice of Confucius before it finally broke on the shores of the Yellow Sea. Yet that great wave came and passed without fertilizing civilization so that it could bring forth the promised fruits of universal happiness.

Inspiration, standing alone, is not sufficient to guide man. It requires Science to interpret its symbols, to formulate its laws and to show their practical connection with the material things of earth, and science has needed long centuries for its development up to that point where it could deal with spiritual laws and their physical embodiments. It was not until our own day, until the nineteenth century, that it became possible to study religion in connection with the laws of man's constitution, laws of the brain and the body. And that study has placed the whole subject of religion in a new and practical light.

In the first advent of modern science, many of its leaders tried to do negative work; tried to destroy ancient beliefs by reducing them all to primitive myths or the vain dreams of savages. Yet these same scientific men knew so little of the inner machinery of mental life that they could not for the life of them explain wherein a dream differed from a waking experience, or how the will, through the brain, did so much as lift the little finger!

The business of science is to explain, not to reason things out of existence; its work is constructive, not destructive.

We know through science that religion is connected with a definite part of the brain, at the middle of the top-head, as shown in the various charts. The great bundle of fibers reaches down from this and enters both of the brain centers, the motus and the sensus. Here in these centers the currents of nerve-force from the religious faculties meet and mingle with the currents which have come from reason, science,

memory, art, appetite, commerce, rulership and all parts of the brain. And the returning currents carry all these varied forces back to religion. It follows as a necessary law of the brain that all of these faculties are affected by those of religion and that in turn religion is affected by all of them.

We therefore have no right to sunder the interests of religion from the other interests and work of society. We would violate a fundamental law of nature in doing that. The German socialists would separate religion, would have the general government not meddle with or touch it in any way. To prove their position right, they must show that rulership in the brain is not connected with the religious faculties.

The church, both Catholic and Protestant, has long taught that reason and science cannot deal with the questions of religion. If this is true, then God made a mistake when he connected these in every human

brain. If we adopt honest methods we can reason as successfully about the problems of religion as we can about those of food or of art, of commerce or government or any other questions that concern our life. In taking the ground it did, the church opposed not only positive science, but also the clear and direct language of the Bible.



RELIGION IS THE KEYSTONE in the royal arch of the brain. It is located at the upper end of the minor axis, the great balancing line for all of the faculties. The major and the minor axis are the two

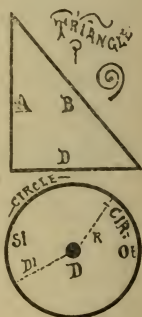
great lines that govern the movements, the action of all the faculties. By its very position, therefore, religion must be the harmonizing force for all the rest. And from this position we have a right to assert that religion includes all those general laws of responsive harmony which unite living, conscious beings with each other.

A UNIVERSAL RELIGION must express universal truths. It must completely express as well as provide for the spiritual wants of man. By whatever name we may call our soul, or the spiritual, internal life, we must see that it is the formative and acting force within every organ, every part, every tissue of both brain and body. Hence our spiritual wants must pertain to every faculty and organ.

The forces of life act from within outward. In the living body "each outward shape has been accurately molded upon an interior shape which gives its life, its explanation; and this interior spirit must have a shape or form in order to create form and sustain form." It cannot give what it does not possess.

If spirit has form, then it also has space, for we cannot conceive of form without space.

For example, consider a very simple form, a triangle. It is bounded by the lines *A*, *B*, *D*. If we move the line *B* over to *A* so that there is no space between them, then the triangle, the shape, will itself disappear. Take another example in the circle. Suppose that there were no distance or space between the circumference, *CIR*, and



the center at *D*, or between the side at *SI* and that at *Ot*. What would become of the circle? It would not exist. While space and form are not the same thing, yet they must always co-exist; we cannot have one without the other. Therefore, if the soul or spirit has a form, it also has space; or as the past philosophers would word it, "the soul *occupies* space." But these philosophers were so loose in their thinking that they imagined that the soul has no space-relations at all.

These men believed that the soul can think and feel and exercise volition. Admitting this evident truth, let us consider a case. I think that the upper figure on page 183 is a triangle and that the lower one is a circle. The difference between the two is a difference of form. Now what is the difference in my thought of one and my thought of the other? Do not the two thoughts differ in their shape, just as the figures themselves differ? If not, then in what way is my mind able to distinguish the difference between them? Suppose that I think of two circles which are of the same size, but one of them is red and the other is green. Now my thought of one must differ in color from my thought of the other. If in this case my thoughts have no color, then how can my mind know the difference between the two?

If we think at all we must see from these facts that our thoughts can have form and space and color. They are not intangible and shapeless nothings, as some people believe.

Through our physical senses we perceive a material world full of objects with varied properties. In like manner the spiritual senses of man have perceived a

vast range of spiritual phenomena, and this has been true in all ages of the world. On the basis of physical sensations and experiences men have built up the many divisions of scientific knowledge. And this knowledge has proved a safe guide in the many-sided practical work of civilization. When we try to draw a circle, it does not turn out to be a square; and when we essay to make a pocket-knife it does not turn out as a plow.

If the physical senses have thus proved themselves to be so reliable, why not apply the same exact methods of science to the world of spiritual experiences? Why should we assume in advance that these methods will not apply to the higher, the inner life? All through the ages men have seen spiritual beings who possessed forms and who could move through space. Why should we imagine that the laws of form and space do not apply to these beings?

For much more than half a century now the world has had ample scientific proof that each of the varied attributes or faculties of our spiritual life is expressed through a definite part of the brain and the body. If the brain is the crowning instrument of the mind, still we know that from the brain a million nerve-fibers, living telephonic wires, extend downward to all the various parts of the body, bringing all of these into a responsive unity.

The functions of the religious faculties in the brain can be studied quite as well as we study those of perception or of reason. In various charts of this book we see that the fibers of religion point directly upward, that is, as far away from the earth as possible.

They must therefore relate us to life and forces outside of this earth. But this upward line is directly dependent upon the downward line which forms the remainder of the minor axis, as shown in the chart of cardinal points. And the minor axis is polarized and balanced by the major axis, crossing it at right angles. These two great lines dominate all other lines of action in the brain and body. This law throws a flood of light upon the practical work of religion. At every point religion has its inner and its outer side, its physical as well as its spiritual phase.

The senses of hunger, taste and smell, of touch, heat and auras, are at the lower end of the minor axis. There can be no perfect action of the religious faculties unless these senses are satisfied. And what do these demand? It is not enough that we merely have food, clothing and shelter. They require dwellings that shall be ample, artistic, convenient and adapted to the broad requirements of harmonic life. These homes must be secure from alienation. The senses require a true system of sanitation, national and domestic, so that all epidemic diseases will be impossible and universal health will be established. The senses demand a normal and systematic culture of the earth, one that shall modify its climates, produce an ample food supply, and sustain the fertility of all lands.

In shameful contrast to all these normal wants we find that for many centuries the Brahminic, the Buddhist and the Christian religions have taught that the work of religion could be perfectly done, its best spiritual gifts could be enjoyed, and its highest culture could be attained, without any of these con-

ditions. In this thing the religious teachers have directly opposed the highest truths of both science and inspiration. Not one of these religions will take practical steps to remove the dark curses of poverty and disease.

At the front end of the major axis are the faculties of learning and science; and at the back end of this line are those of liberty, equality and industry. The upright minor axis, with religion at its crown, cannot maintain its unity, its power for good, unless this horizontal line also acts in a full and normal manner. This requires that both knowledge and industry shall be organized in the interest of all the people. Instead of this, the Christian church has taught that ignorance is no bar to a perfect spiritual life and that science is either opposed to religion or else has nothing to do with religious truths, while an industrial condition in which the workers are actual or practical slaves need not lessen the enjoyment of the best spiritual blessings.

The great lines of force in the human brain are fixed by the eternal laws of geometry. These lines are sustained by the very form and attachment of the muscles in the human frame. More than this, we know that these same laws of the ellipse extend from the lowly forms of life up through man to the sublime mechanism of the heavens. The radiant paths of thought and feeling in the brain follow the same laws that mark the orbits of planets and stars in the vast realms of space. The basic laws of religion are not confined to the great pulsations of spiritual life, for they are embodied in the very framework of the universe.

It is the glory of modern science that it does more than to give us an inward consciousness of the vast unity of things. For by giving us a definite knowledge of laws, the science of our day places in our hands the power to create those harmonies of life that shall fill the measure of human aspirations.

The modern attempts to prove that morality is not a part of religion have been false to both history and philosophy. For history shows that every great religion has included a system of morality, it has dealt with the relations of man to man. And philosophy agrees with inspiration in teaching that our fellow beings have souls as well as ourselves, and that the relations of parent and child, of man and wife, of neighbor and friend, all serve to illustrate our proper relations to spiritual beings above and around us.

Religion is essentially social and not individual. For it always expresses the reciprocal relations of one living being to others. To say that religion is or should be a private affair is to mistake its very nature. We are related to our fellow beings; we act upon them through every faculty. The true constitution of society, with all of its institutions, thus becomes the greatest question of religion. The prophets of Israel were right in making religion a constituent part in a kingdom or state of universal righteousness. The Bible salvation was collective; it aimed at saving communities and nations, as all of its great promises clearly show. The full life of man is collective; it is always connected with the life of his fellows. The isolated monk in his narrow cell imagined that he was religious. But his experience was morbid; it was far from being healthy and normal.

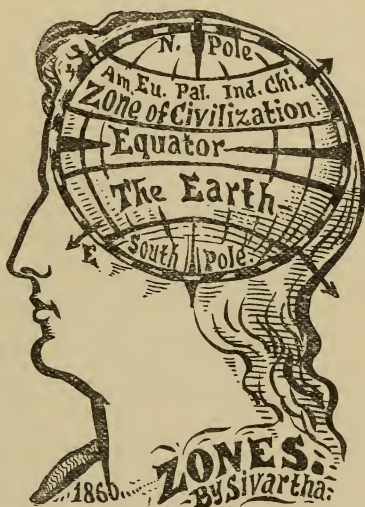
To starve and mortify the body does not enrich and beautify the soul. Body life and soul life are inter-linked at every point. To injure one is to hurt the other. The best body is the best instrument for soul expression.

Since the time of Aristotle the men of science have sought to find those laws which bind together in one connected chain the long series of animals and plants. These men have found that one system of laws extends all the way up the scale, from the simple ameba without any special organs up to man with all his complex powers. If beings exist of still higher rank than man, the laws of their existence are still the same as those which are in his constitution. Man is still incomplete, when measured by the standard of the laws in his own nature. In those higher beings these laws have their full expression. If we know these laws as they are in man, then we can understand them in beings still higher. There is neither good science nor good logic in speaking of the higher existences as "incomprehensible" or "unknowable."

THE COMING RELIGION must state clearly the spiritual laws in the constitution of man. If it does this, it will clear up the mysteries of the Bible. As one example, that book asserts that man was made in the image and likeness of God. We know that if a small machine be made in the form of a large one, then the small one will be governed by exactly the same mechanical laws. We therefore know that if man is in the image of God, then the laws of his constitution are the same, allowing for difference of perfection and greatness.

It follows that if we understand man we shall also

understand Jehovah. And if man obeys fully the laws of his own being, then he will be in harmony with the Divine Being. The Bible not only implies but asserts this. Moses tells the Israelites that the authority for his code of laws was within their hearts. And in Jeremiah we are told by Jehovah that the system of laws, the TORAH, under the Messiah should be "written in their inner parts," or, as we would now express it, in the constitution of man. If this declaration be true, then we have already in the present book described the Kingdom of the Messiah, the constitution under which he will reign.



We mean here to assert that if the Bible account is true, then the Divine mind has just the same number of faculties that we find in the mind of man. The divine faculties are arranged in the same order, on the same plan, and their laws of action are just the same as in the human mind. There is no more mystery about one than about the other. The Bible does not say that God is infinite and therefore beyond the

When laid on the head, the North temperate Zone corresponds to those brain faculties which have made man a civilized being

reach of our understanding. We know that the so-called wise men have said so, but they argued from false premises to worthless and blind conclusions.

In many directions men have found truths or laws which appear to be universal, laws which appear to apply to all objects everywhere. Such are the laws of number, space and form in mathematics. Twelve angels would be three times as many as four angels, just as twelve oranges would be three times as many as four oranges. It is the soul of man that recognizes and considers these truths. The search for universal truths is the proper business of philosophy. And surely the soul is doing a bad piece of work when in searching for truth it tries to reason itself out of existence.

A true religion will only require us to obey laws which are within our own natures. The authority is internal, not external. The laws are not imposed upon us by a superior being. And these laws cannot abridge or interfere with our personal freedom.

If we have twelve groups of faculties, as science has proved, it follows that a universal religion must be twelve-fold. It must deal with all these; it must harmonize these twelve-fold relations. It is self-evident that each group of faculties must have its own special laws. Thus the laws of reasoning are not just the same as the laws of memory; those of perception are not the same as those of ambition. Each of these laws has both a spiritual and a physical side, both internal and external relations.

Along with this enlarged scope of religion our modern science gives us such means for research and proof that all persons can understand these vital

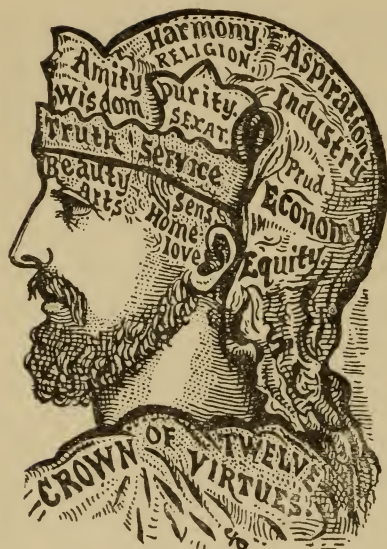
truths in the same manner. This will bring to an end the long series of religious sects, of bitter antagonisms and savage persecutions which have darkened the pages of religious history. Men will come to agree upon one religion as they agree on one system of arithmetic or any other branch of knowledge. Religion must advance, as other branches of knowledge have done, toward more and more definite ideas, toward more and more practical forms for expression.



The universal religion will express itself through symbols to a greater extent than any form of religion in past times. But with this great difference. That these symbols, and ceremonies as well, will all be in full harmony with those laws of universal analogy which are the real basis of all

figures of speech, of all symbolism and metaphors. With a clear laws of analogy we shall be in no danger of losing the soul of things through attention to its external forms. We shall always feel the radiant inward life through the outward drapery of beauty.





THE MORAL LAW in its full statement includes the twelve great virtues. These arise from the groups of faculties, each having its dominant virtue, as shown in this chart. Thus in the group of arts, the leading virtue is the love of beauty. In religion it is harmony.

In a similar way we might sum up the spiritual side of the twelve groups in single paragraphs.

1st SENSATION.—Unfolding the seven spiritual senses with their harmonies.

This is partly seen in the visions of all ages, in telepathy, mesmerism and psychic impression. With higher culture these may become reliable and universal.

2d. PERCEPTION.—Eternal types of use, beauty and order with the higher use of all these.

3d. MEMORY.—Cycles of immortality; renewal of life. Unity with the cosmic cycles.

4th. REFLECTION.—Inspiration and spiritual methods of work; unity with universal laws.

5th. CULTURE.—Unselfish unity in universal brotherhood; unity of all reforms; integral culture.

6th. MARRIAGE.—The dual unity of all creative forces. Purity as the higher use of all powers.

7th. RELIGION.—Responsive unity between all ranks of life, from the ameba up to the great central life.

8th. FAMILISM.—Spiritual heredity applied to human advancement; parental responsibility.

9th. AMBITION.—Aspiration to perfection of life; obedience to natural laws.

10th. INDUSTRY.—Universal justice; natural rewards and penalties.

11th. WEALTH.—Spiritual treasures and gifts; the higher uses of all material conditions.

12th. COMMERCE.—Spiritual highways and interchanges. Spiritual equity of the human race.

ONE SYSTEM OF LAWS extends its sway from the minute changes in matter to the movements of the everlasting stars. This is the settled conclusion of modern science as it once was the conviction of ancient philosophic speculation. "As in the great, so in the small." If this is true in the realm of physical things, we are justified in thinking that it is equally true in the ascending realms of spiritual existences. We need not search or go outside of man's nature to find the great laws of spiritual harmony.

The legitimate plan of the present volume does not include a systematic statement in detail of the truths of religion. We only aim to sketch their basis, their proper scope, and their chief lines of action.

The scientific men of our day believe that there exist many other series or scales of vibration besides those known in colors, in sounds, heat and other familiar forces. Thus above the scale of seven colors there would be another octave of colors with waves too small to be seen in ordinary conditions of the eye. In some states of mental excitement the rods and cones of the eye become more tense, so that they are set in vibration by these finer waves, and we perceive them as spiritual light. Above the five senses would be the higher series of seven senses. With these higher senses fully developed, the realm of spiritual beings and activities would seem quite as real to men as the coarser physical things do now.

Beauty is truth and utility. For geometry proves to us that every curve in a living object is a product of inner forces, acting with definite ratios. The beauty of plants and animals is therefore an expres-

sion of their actual character. Thus art has its own spiritual foundations.

Passing on, to the faculties of memory, we know that these link the past, the present, and the future into one connected whole of time. They carry forward the stores of experience and wisdom from year to year through all the phases of life. A spiritual or an earthly existence without any faculties of memory would indeed be narrow and poverty stricken, not worth the having. We could neither learn from the past nor hope for the future. In their wider relations these faculties of memory cognize the cycles of personal, national and cosmic life. In the new civilization, both communities and nations will be wise enough to harmonize their affairs in unity with the great cycles. We must remember that these cycles are essential elements in the great system of evolution. The cycles measure the rhythmic sweep of universal progress.

The ancient prophets foretold an era of universal brotherhood, millenniums of unselfish life among all nations. And the most central among all the laws of evolution, as now developed by science, affirms that the unselfish rule of the higher brain faculties will ultimately prevail in both private and public life everywhere on the broad face of the earth. Science now proves that at every advancing step of civilization the mutual dependence between the members of society becomes greater and greater. At last this becomes so complete that the perfect or normal action of each member is possible only when all the other members fill their part. The good of each depends upon the good of all. Thus the most recent

science teaches altruism, the unselfish life, with an emphasis strong as the vast rocks which form the records of geologic history.

Science counts and it measures. More and more the new discoveries are proving that in her vast operations and her lesser movements nature uses a fixed series of numbers—"sacred numbers" the ancients called them. These numbers are fixed in the very nature of things. No one doubts that they rule in the chords of music and color. In the brain all of the faculties respond to each other as thirds, fifths and octaves. In the body, as shown by the engraved measure of man in a previous chapter, the parts respond to each other in three octaves, the base, soprano and tenor. This response is both physiological and spiritual. The hand, for example, is an octave from the breast. And placing the hand upon the breast is one of the impassioned and sweeping gestures of oratory. The relation of the religious faculties to the others is through a series of musical chords. With these facts as a basis, the laws of universal analogy would teach us that the ranks of spiritual beings above man are all governed by the scale of musical chords. The distance of each rank above or below the others would be measured by thirds, fifths or octaves. And these same measures would govern their mutual responses.

If man would put himself in true harmony with the divine life, he must establish these musical chords in the work and life of all the twelve departments of human society. Man will find this an altogether different process from what he has done through past ages in the name of religious service. This new work

will be very different from repeating devout supplications, or elegant ascriptions of praise, or rhythmical and learned phrases of pulpit oratory. These poor substitutes for life have no power to fit man for the reign of righteousness and peace.

The perfect life is worth the effort required for its attainment. It is indeed within easy reach of the present generation. Its new methods rest upon everlasting laws. It will not require eighteen centuries of experiment to verify their truth and their efficiency.

We ask the reader, or the critic, if by chance such a one should criticize these pages, to note that the statements here made concerning the laws of harmony in man's constitution, are not made on the basis of momentary fancies or a mere surface knowledge and speculation. On the contrary, these statements represent the results of many years of careful study and work in the fields of the exact sciences, many years spent in analysis, comparison and measuring. That long survey justifies us in speaking with a good degree of confidence. Still very much remains to be done in these fields. Social harmony includes immensely more than many of our writers have imagined. Vastly more than good sentiments and kindly intentions.

The coming religion cannot be evolved by a generous sort of synthesis of those which already exist. However well done, that process would only give us a mass of impractical mysteries, or else would only save the common moral precepts. The Christian teachers, like those of the Hindoo religions, declare that the great doctrines of religion are mysteries. You cannot

mix up mysteries so that they shall explain each other. If you blend together the ignorance of a dozen men, it will not produce wisdom or science. A scientific development was needed for religion quite as much as it was required in geology or astronomy. Even a cursory sketch will show that in clearness and precision of statement, in the inspiring loftiness and breadth of its purposes, and in the practical certainty of its methods, the scientific unfolding of religion will exceed the older views of theology as much as the splendors of noonday surpass the uncertain glimmer of the stars.

Because science was not developed, a mass of error has gathered about every form of religion in past times. The only safeguard against this in the future will be to unite science with inspiration as the measure of all truth. In the new social order no doctrine or belief which is not susceptible to scientific demonstrations must ever be made a part of the laws or constitution of society. Scientific proof can be made a basis for unity because this kind of proof can be understood alike by all persons. The faculty of inspiration is placed side by side with that of reason in the brain. This alone is sufficient to show how absurd it was to suppose that reason could not understand the truths given through inspiration. The two faculties are normal complements of each other and were made to work together like all other pairs of faculties associated in the same manner in the brain.

The Bible is a library of Hebrew books, bound together in one volume. These books were written by many different persons, at intervals during fifteen

hundred years. About one-fourth of the Bible claims to have been written by inspiration, and much of this is clothed in symbols and metaphors.

Whatever we may think about the process of inspiration, we must interpret the great prophetic symbols according to the fixed analogies of nature. The laws of symbolism are exact; they are based upon analogies, upon fixed laws of relationship in the nature of things. No person can think of using the tiger as a symbol of mercy, or the fox as a type of candor.

It is as easy to distinguish between the figurative and the literal language of the Bible as it is to distinguish these in the common speech of every day life.

In prophetic writings as well as in common language the power of the lower faculties and the back brain are symbolized by the dragon, the wolf, the lion, the serpent and other lower animals, in which these lower faculties are ruling elements. The gentle qualities of the lamb, the dove and the horse, led to the adoption of these as types of the higher parts of man's nature.

In the Bible Jehovah is represented as the spiritual ruler of our solar system; as the head of its spiritual system of government, with subordinate officers associated with him. All this corresponds to what we should conclude from the laws of analogy. That Book does not say that Jehovah is either infinite or omnipresent. Human experience does not show that he superintends the details of our daily life. Nor do we understand in what way he was concerned in the evolution of the earth. The primary laws of

world-growth are not yet clearly understood by scientists. The Hebrew word "Bara," translated "created," does not mean "to make something out of nothing." It does signify that two objects, spirit and matter, acted freely upon each other and thus produced a third object; and that these two forces were polar to each other and the movements were directed by intelligence. The number of the word Bara is 2-0-3, and this is the true mathematical symbol of creation or formation throughout the universe. In all cases two things combine their action to form a third. Our scholars know very well that each letter of the Hebrew alphabet is a hieroglyph or symbol, and each letter stands for a significant number. The first chapter of Genesis was written wholly as hieroglyphs and can only be intelligently translated on that basis. These symbols are ingeniously arranged so as to read as ordinary words. No real translation of that entire chapter has yet been published.

What shall we say of the great mass of communications from decarnate spirits which seem so abundant in our time and which have appeared all through past ages and among all nations. When we disentangle the verbiage from the facts in these spiritual messages, we find that the modes of angelic life very much resemble our own. They have forms of government and choose their leaders. They have schools of instruction and other institutions. They occupy mansions, have costumes, and eat spiritual food. They take an interest in the affairs of their friends here, and often assist them by advice and encouragement. For they may often perceive acting

causes which are invisible to us, and so they can warn us of danger, or guide us to the good. Our communion with the angel world takes place through the radiant nerve-force.

We cannot look to decarnate spirits as teachers of general truths. It is evident from their messages that they do not understand the philosophy, the ultimate laws of their own state of existence any better than men here understand this state of being. In all their messages they have not been able to tell us of any spiritual laws which were not already discovered or elaborated by scientific men here.

The spiritual laws are essential elements in our natures now. It is for us to learn and to obey these laws here, if we wish for happiness. And the best possible preparation that we can make for a higher spiritual existence is to live up to the full measure of these spiritual laws in our every day life on this earth. The true use of religion is to live well and happy, not to die well. The Bible salvation confines its promises to man's life on this earth. And a life here can be made more perfect and glorious than any picture or vision man has ever seen of life in supernal spheres. All these have fallen far short of what science declares to be attainable here.

THE GREAT CENTRAL IDEA of the Bible is a kingdom of universal wisdom, peace and justice. The New Jerusalem was to be its capital city, and this was to have twelve gates and departments. These last were to be occupied by people from each of the twelve tribes of Israel. What was the motive in this? The tribes had been scattered far and wide. Why should they be gathered again? The

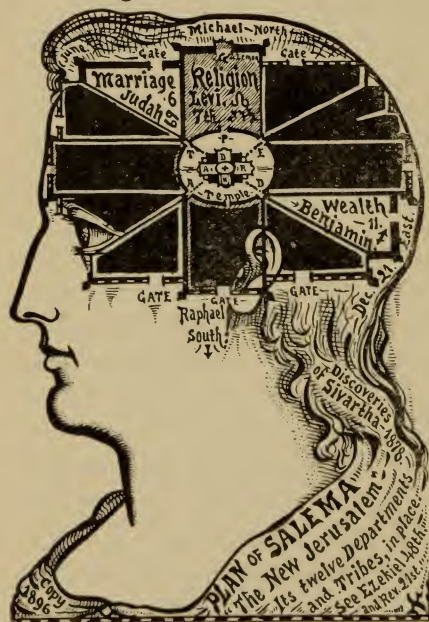
answer to this is the key to the plan of the Bible. The twelve tribes represented the various types of character necessary to fill the twelve departments in a model system of government. We accept the Bible account of the tribes as being fairly good history, as good as that which other ancient nations have handed down to us. Beyond this our argument rests upon good scientific evidence, and not upon speculations.

Ancient Israel was an undeveloped type of a new social order. Each tribe was at once a symbol and an embodiment of a truth. For each was marked off from the others by distinct traits of character, by the predominance of a special group of faculties. These distinctions are set forth in the blessings pronounced by Jacob on his twelve sons, as given in the forty-ninth chapter of Genesis and in that given by Moses in the thirty-third of Deuteronomy. These traits of the tribes are dwelt upon and emphasized by such eminent Jewish historians as Ewald, Kitto and others.

"THE MEASURE OF THE CITY is the measure of a man." Let us lay the plan of the city on the human head as on page 226. Then we shall see each tribe is placed over that group of faculties in the brain which corresponds to the ruling traits of character in that tribe.

Both Ezekiel in the Old and John in the New Testament describe the New Jerusalem as to be occupied by the twelve tribes. In his last chapter Ezekiel tells us where each tribe was to be placed. These places are correctly given in our diagram plan of the city. The page of description faces the plan.

In the new social order, when we select members for each department whose characters adapt them to its special employments, then we are in reality "Sealing them in twelve tribes," as the prophets foretold in the Old Testament and in the book of Revelation. Is this man deeply religious and devoted? Then he is a Levite and Levi is in the religious department. Is that man ambitious and fond of display? Then he belongs to the tribe of Joseph and the department of rulership. The identification of those who belong to each tribe does not require a miracle, as the Jews supposed. It only requires the art of reading character. The people of all other nations, of all countries, can and must be arranged into twelve tribes and departments in



the same manner. On this head three of the tribes are left light. These now form the people known as Jews. See page 228, farther on. The black shades show the place of the "lost tribes." But these lost ones were to be restored, the same as the Jews. This all the prophets assert in a positive manner.

The Levites were the most religious of all the tribes. The priesthood and the service of the temple was their allotment. Look at the diagram and you will see that their place in the city is directly where the religious faculties are located in the brain.

The work carried on in the department of wealth requires large organs of defense and economy in its members. That makes them like the Benjaminites, and this tribe was located over the group of wealth. "Benjamin is a wolf, seeking spoil and combat."

The half tribes of Joseph, that is Ephraim and Manasseh, towered above all the rest in ambition. On these faculties of the brain Joseph finds his place.

Dan shall cry for justice, as his name portends; he shall toil in the group of labor, where his place is.

Crouching down between two burdens the "hired ass," Issachar, shall rest in the group of commerce where the prophet places him.

A tiller of the soil, a lover of sense and of the pleasures of home, how could Zebulon be better placed than on the home department.

The artists of Israel were Simeonites, and on the department of art has prophetic foresight given Simeon his location.

A troop, a troop cometh! It is the tribe of Gad, bearing the myriad facts of history for the department of letters, where he was assigned.

The iron shod and the brass mounted engines of science bring royal dainties from every land, and well was Asher located over the group of science, for these were his identity marks.

Bland words and pleasant manners graced the swift footed Naphtali, and rightly was he placed on the group of culture where these belong.

Let Judah's teeth be white with milk; let him drink the fragrant wine of marriage, and not mix its cup with the blood of gentiles.

May Reuben "see many sons," for the seer hath placed him in the group of familism.



PALESTINE IS CENTRAL in the world of nations. When all the nations of the world are united, they will choose one for the unation, one country to be their common pivot or center for international action. Palestine is the most central and accessible from all directions. For this reason it was chosen through the ancient prophets as the Promised Land.

And for this reason it will be restored. It is a cosmopolitan country, having every variety of climate and productions. It could easily sustain twenty millions of people. The Palestine of promise and prophecy, and as ruled over by David and Solomon, is 500 miles in length and contains 84,000 square miles; as large as Great Britain.

In the year 976 B. C., TEN of the twelve tribes of Israel revolted and set up the separate kingdom or "house" of Israel. It was also called "Ephraim" by the prophets because that half tribe took the lead. The two tribes of Judah and Benjamin, with a part of the Levites, remained together as the kingdom or "house of Judah." Afterward they became known as Jews, as they are in modern times.

The ten tribes were carried away captive to Assyria in 721 B. C. They never returned, but they gave up their religion and language, and are spoken of as "lost tribes." "The lost sheep of the house of Israel."

The Jews were carried captive to Babylon, 586 B. C. Seventy years later they were returned under the proclamation of Cyrus. Ezra and Nehemiah, their leaders, report only the tribes of Judah and Benjamin with the Levites as returning.

What became of the lost tribes? Many students of history believe that the Anglo-Saxons in England and America, with the Norse nations, are the direct descendants of these tribes. For they have the same characteristics, and answer the graphic descriptions of prophecy.

Two hundred verses of the prophets assert in the most positive manner that PEOPLE FROM ALL THE TWELVE TRIBES SHALL RETURN TO PALESTINE and make that a central and model nation. Only one-fourth part of the new nation will be Jews, if the prophecies are true. If the Jews become a nation there without the other tribes, then the prophecies are false. In the small plan of the city the places for Jews are left light and the department of the nine other tribes are shaded. See page 203.

The Master of Nazareth chose twelve apostles "to sit upon twelve thrones and rule the twelve tribes of Israel." For each tribe had a prince in ancient times. See Matthew, nineteenth chapter. These apostles stood for the "twelve foundations," of the home, arts, letters, science, culture, marriage, religion, familism, rulership, industry, wealth and commerce. In the New Testament it says that twelve thousand of each of the tribes will be sealed for the city. This "144,000 stood with the Lamb on Mount Zion," which is in Jerusalem.

Christ stood for all these basic things, these funda-

mental truths; else his kingdom and its magnificent promises were only hollow mockeries. That kingdom was to take the place of all others. And from that remarkable prophecy in Isaiah Ninth we know that the Messiah was to sit "upon the throne of his father, David, to order it and to establish it with justice and with judgment forever." The kingdom of David was a literal one; it included all the legal and political functions of any government. It was a serious mistake for Christians to imagine that the prophets foretold only a "spiritual" kingdom, with its rule only in the hearts of his followers. Truly the kingdom will be spiritual; it will embody a greater number of spiritual laws than the Christian world has yet recognized. But it will also be literal, external, material; else the strong Hebrew language is incapable of expressing such an idea. The Bible salvation was to save men from all the great evils of this world.

The most wonderful of all Bible discoveries is this which shows us that when the plan of the New Jerusalem is laid on the head, every tribe comes over that group of brain faculties which formed its ruling traits of character. The tribes form a group of three for each of the four sides. The sciences of geometry and arithmetic prove that this exact placing of all the tribes over the faculties could not occur except as a result of an intelligent design; that those beings who gave the plan to the prophets must have known where all of these faculties were located in the brain, and that therefore the kingdom and its capital city were planned to represent the twelve kinds of wants which arise from these faculties. In the whole range of science there is no truth which is more definitely

and positively proved than this one in regard to the plan of the city and its twelve-fold significance. And it is also absolute proof that these parts of the Bible were inspired.

In the engraved measure of man as given in our fourth chapter, pages 109 and 110, we have shown that a scale of twelve angles, arranged precisely in the order of the twelve parts of the New Jerusalem, is the only scale that will measure the plan of the human head. A scale of twelve times twelve, 144, will measure the entire human form. It is true, as the angel said, that "the measure of the city is the measure of man."

From all these facts we see that the kingdom of the Messiah could not be established until science was discovered and elaborated. That has required long ages of growth. The kingdom was to be as broad as human wants. And we could not classify these wants until science explored the constitution of man, and traced these wants to their first source in the mental faculties.

Within the last few years there has been much discussion about the restoration of the Jews to Palestine. But many of the writers on this subject seem to quite overlook the vital fact that the Jews now include only about ONE-SEVENTH PART of the people who are lineal descendants of ancient Israel; and that the many Bible promises of a restoration all specify the twelve tribes. There is not a promise of restoration for the Jews without the other tribes.

We cannot quote the multitude of passages, but two or three will show their tenor. "In those days the house of Judah (the Jews) shall walk with the house

of Israel, and they shall come together to the land that I have given for an inheritance to your fathers."

"It shall come to pass in that day that the Lord shall set his hand the second time to recover the remnant of his people, and he shall assemble the outcasts of Israel, and gather together the dispersed of Judah from the four corners of the earth."

Ezekiel was told to take two sticks as a symbol and write on one for the tribes with Joseph and on the other for the tribes with Judah (the Jews). "And the two sticks shall become one in thine hand. And thus, says Jehovah, I will bring again the captivity of my people Israel and Judah, from all the countries whither I have scattered them, and I will cause them to return to the land that I gave to their fathers, and they shall possess it. And I will make them one nation in the land upon the mountains of Israel; one king shall be king to them all, and they shall be no more two nations. And they shall no more be pulled up out of the land that I have given them."

The Jews, or Judah, Benjamin and Levi, have closely intermarried and have remained exclusive. They could not become a representative and cosmopolitan nation. But the twelve tribes, taken together, present all the diversities of character and talent needed to compose such a nation. For this reason they were the Chosen Nation. For this reason the record of Israel stands as the central fact in the world's history.

The statesmen of Europe to-day recognize the restoration of Palestine as a vital and critical problem of international statesmanship. We are hence justified in giving the subject so much space.

No other religion than that of Israel ever had complete and all-comprehensive symbols like the Twelve Tribes, the New Jerusalem, and the Tree of Life with its twelve fruits. The philosophical historian is therefore bound to give this religion a full consideration.

THE TREE OF LIFE is given in the Bible as directly connected with the past and the future destiny of man. What was the tree and why of such great importance? It was not until 1861 that science was able to give the final answer to this question.

In all plants and animals each organ is modelled from the essential plan of a leaf or tree. This plan includes a central tube, or bundle of tubes, with branches which terminate in minute or microscopic cells. These cells do the vital or constructive work of life. The tubes convey currents of liquids or of force.

The brain and spinalis in man give the highest example of these tree-forms. This is the great Tree of Life spoken of by the ancient seers and poets of all nations. The twelve groups of faculties produce "the twelve manner of fruits." All that is sweet and noble and true, in the private life of man or in the public history of nations, have been the fruit of this great tree.



In our second chapter we have shown that the higher branches of this tree have not yet been represented in our institutions.

It is evident that the Bible writers of this account regarded our spiritual or religious life as twelve-fold. Yet up to the present time the Christian world has overlooked this important truth.

THE RIVER OF LIFE has its four heads in the four chambers of the heart, the two auricles and the two ventricles. These are marked *RA*, *LA*, *RV* and *LV*. From these four heads the arteries and veins extend upward or north, to the head; eastward and westward to the arms and lungs, and south to the trunk and lower limbs. We have supposed our man lying down, with his head to the north, as we would place a map of the earth.

THE WATER OF LIFE is the blood with its bioplasm and cells. It is three-fourths water, with living matter diffused through it. In the ancient sacrifices the blood was used as a true symbol of life and of healing forces. In the Hebrew there is no word that means pain, or penalty or suffering, that is ever applied to the sacrifices. The common idea about them is utterly false. In reality the ancient sacrifices were feasts. They expressed gratitude and good will, or spiritual healing and reconciliation.

The Latin word "sacrifice" means "to make sacred," not to punish or destroy.

FORGIVENESS and atonement are both natural. They are efforts to restore the normal conditions of health and harmony. In the living body the power to heal is in the very nature of all the tissues. And so in the spiritual realm, atonement is not a contra-

diction but a fulfilment of the law of healing. It simply stops the evil internal action at a certain point and allows the healing powers to commence and carry on the work of spiritual cure.

It is beyond the limited scope of the present work to make a separate discussion of details in religion. In the full edition of the Book of Life the reader may find them described more at length.

OBEDIENCE brings life in every sphere of existence. For the human constitution, the nature of our faculties remain the same whether we exist in a physical or a spiritual world.

The amount of life is measured by the variety of powers, and the ability to resist those causes which tend to destroy the body. This quantity increases from infancy to maturity. There is no reason, that man has yet learned, why our physical existence might not be continued as long as man chooses, if all the conditions of life were fully maintained. When maturity is reached, for a number of years the internal forces are able to keep an even balance against those which are outside of the body. If we knew and obeyed the vital laws, it would be no more difficult to maintain that balance for a thousand years.

The life of each person is bound up with that of others. It is affected on every side by their life and conduct. Hence human life can be greatly prolonged only by the collective obedience of society. This obedience requires true institutions, in harmony with man's nature, such as we have described in these seven chapters.

But suppose that we were not assured of an earthly immortality. Yet we can be absolutely certain that

human life could be ushered in by a painless birth; that during long centuries it could pass through scenes of unalloyed happiness, and when old age should finally come, it would be a gradual fading out of life.

The stability of this earth as the abode of man is secured by cosmic laws whose cycles sweep through millions of years. Man cannot escape from his destiny. He must remain a dweller on the earth; but he may change widely its conditions. And the possibility of removing the great evils that have afflicted the race should move us to the mightiest efforts to transform the old conditions and drive the dark hosts of evil from the fair face of the world.



A LIST OF REFERENCES

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The discoveries of Dr. Sivartha were published from 1859 to 1878, in scientific lectures before various learned societies, in pamphlets, newspaper articles, and in editions of "The Book of Life." All these were amply illustrated by charts and paintings. "The Book of Life" is a comprehensive, but by no means an exhaustive view, of the whole subject.

The discoveries include, chiefly, the great laws of the Brain Ellipse, reducing all mental action to geometric formulas; the laws of Mental Polarity and chords; the arrangement of the faculties in twelve groups and trinities; the definite plan of the Social Organism; the meaning of the New Jerusalem, the Tree of Life, the Throne with twenty-four rulers, the twelve fold measure of the head, the new astro-science, and the auro spheres with their colors. A multitude of scientific truths, discovered by many masters, are included in the new Science of Man, thus developed. The system of Integral Education and the Vesona or Universal Language, are logical outgrowths from these discoveries.

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